

HOURS OF LABOR

BY
LAZARE TEPER

A DISSERTATION

Submitted to the Board of University Studies of the Johns
Hopkins University in Conformity with the Requirements
for the Degree of Doctor of Philosophy

1931

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Gen. 50 No 1.

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PREFACE

The subject of working hours has been often discussed. Excellent works have appeared on certain phases of the subject. The literature of scientific management and that of social reform is full of books, pamphlets and articles treating the hours of labor in various aspects. A bibliography of all printed works on this subject matter would fill a volume.

The literature in existence has treated the problem of working hours: (a) from the ethical point of view, showing the social benefits derived from the reduction in the length of the working day, or (b) from the managerial standpoint, showing the relation between the extent of the working time and efficiency, or (c) with historical insight into various movements for the reduction of working hours. The first part of the present work attempts to throw light on the covariation of the hours of labor with some of the economic forces influencing their length. The second part traces statistically the movement of the hours of labor in the United States over the period of the past forty years.

The study originated in an investigation carried on by the author while a member of the Economic Seminary of the Johns Hopkins University. Materials contained in the files of the Office of the Commissioner of Labor and Statistics of Maryland, publications of that office, of the U. S. Bureau of Labor Statistics, and of the North Carolina Department of Labor and Printing, as well as of other government agencies were utilized as sources of information. Thanks are due to Dr. J. Knox Insley, Commissioner of Labor and Statistics of Maryland, for permission to utilize the records of his office.

The author wishes to express his indebtedness to Professor J. H. Hollander, Professor G. E. Barnett and Dr. G. H. Evans: in the first place, for stimulating the production of his work as they have so many others; and secondly, for assistance received at every stage of his inquiry.

The author is grateful to the Lessing Rosenthal Fund for financial aid in publishing this monograph.

L. T.

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HOURS OF LABOR

PART I

HOURS OF LABOR IN RELATION TO VARIOUS FACTORS

CHAPTER I

DATA AND METHOD

Using an analogy from the theory of the resultant of forces in mechanics, we may say that an economic phenomenon is a composite of what may be called economic forces, defined as "wirtschaftlichen Dinge, die wir aus theoretischem oder praktischem Bedürfniss als Einheiten einsetzen."¹ Thus, we can possibly explain the downward trend in the length of the working period as caused by the application of various "Wirtschaftselemente", as Wagemann calls them, with various degrees of intensities at different times. It is of great interest to see how these various elements are related among themselves.

In studying economic phenomena from a statistical viewpoint, the research worker, as a rule, has to resort to sampling, as it is not possible for him to cover the whole gamut of universal experience. In proceeding in such manner, certain assumptions are necessarily introduced in the course of the reasoning. We must assume that our sample is homogeneous with the universe, thus introducing a certain element of "improbability" in the results. Information on hours of labor and other factors used in this study was obtained for Baltimore, Maryland, and the State of North Carolina. While the first offers us a highly concentrated industrial center, North Carolina presents a much larger geographical territory for investigation.

¹ Ernst Wagemann, *Konjunkturlehre*, p. 22.

BALTIMORE DATA ²

The Maryland Legislature, in establishing the Office of the Commissioner of Labor and Statistics,³ made it one of the duties of the Commissioner "to collect statistics concerning and examine into the condition of labor in this State."⁴ Various mercantile, manufacturing or mechanical establishments were required to furnish any information they possessed which the Commissioner of Labor and Statistics was authorized to require.⁵ The inspection of the premises of various establishments was also authorized by the Legislature.⁶ Factory inspectors in charge of the Commissioner were vested with supervision of various laws.⁷

In the performance of their duties the factory inspectors fill out the forms prescribed by the Commissioner. One of these is used to collect general information,⁸ while the others are utilized either to supplement the first form or independently to indicate the violations of various labor laws. During 1928, the year for which the data were used in this study, among other information gathered, data on the normal hours of work per day and the number of employees by age, sex, and color were assembled. Out of the general mass of the data thus collected, information was segregated for those establishments which were engaged in manufacturing of some sort, employing at least five persons,⁹ and for which a record was made on inspection form No. 1000.¹⁰ Thus, data for

² The author wishes to acknowledge at this point the invaluable cooperation given to him by Dr. J. Knox Insley, Commissioner of Labor and Statistics, and Miss A. Louise Murphy, Statistician of the Staff of the Commissioner of Labor and Statistics, without whose assistance this part of the study could not have been made.

³ Bagby, Maryland Code Annotated (1924), art. 89, sec. 1.

⁴ Ibid., art. 89, sec. 2.

⁵ Ibid., art. 27, sec. 298.

⁶ Ibid.

⁷ Ibid., art. 100, sec. 51.

⁸ Inspection form 1000.

⁹ The executives are included in this number, which also includes the proprietor of the business if it is not incorporated.

¹⁰ The Annual Report of the Commissioner of Labor and Statistics of Maryland for 1928 shows that the number of establishments inspected during the year in the City of Baltimore was

1,445 establishments employing 83,787 persons were considered in this study.¹¹

In classifying the data thus collected recourse was had to the Manual of Classifications of Manufactures used by the Census Bureau.¹² In preparing the Census of Manufactures various establishments are assigned to a specific industry by the "character of the product or class of products of chief value," with a few exceptions.¹³ However, this information was not collected by the Office of the Commissioner of Labor and Statistics of Maryland. The factory inspectors did not adopt a uniform classification of manufacturing establishments, this being but a minor detail in connection with their work. It may have happened occasionally that similar establishments were classified differently by different inspectors. It was occasionally necessary, therefore, for the purposes of this study, to consolidate two or more classifications. However, it is not likely that this has affected the results to any appreciable extent.

The information asked from the various establishments and tabulated on the cards, as evidenced by the accompanying reproduction (Appendix A), roughly classified the employees according to occupation in the following manner: executive, office, sales, personal service, workroom, domestic, and home workers. No exact definitions were made of each of these groups.¹⁴ These occupational subdivisions were disregarded in connection with the present study and only aggregates of

16,779, of which 935 inspections were in connection with the enforcement of Child Labor Laws, 4,171 in connection with the Ten-Hour Law, 2,359 of Factory and Home Workers, and 10,776 of a general nature, bringing the total number of inspections to 18,241 during the year.

¹¹ The Census of Manufactures for 1927 lists 2,090 establishments having products valued at, or more than, \$5,000 and employing on the average 84,005 wage-earners. While the number excludes executives, office and sales help, the figures used in this study do not exclude them. Again, in the present study no consideration was given to the value of commodities produced, this information not being available in the Commissioner's Office.

¹² U. S. Census of Manufactures, 1929. Industry Classifications, by LeVerne Beales, Chief Statistician of Manufactures.

¹³ *Ibid.*, p. 3.

¹⁴ See MS. "Instructions to Inspectors," reproduced in Appendix A.

employees by sex and age for each particular establishment were used. Since the hours of labor, our primary interest, are not collected by occupations, it seemed useless to maintain the occupational subdivisions in the number of employees.

The hours of labor were recorded on the inspection card in a frequency table, the peculiarity of which is the seeming irregularity of the various class intervals. Since the cards were prepared primarily for inspection and not for statistical tabulation, the main bases for the classification were certain considerations in connection with the enforcement of the labor laws of Maryland. It is a recognized fact that the hours of labor cluster about certain points in the scale. For this reason no interpolation of the class intervals is attempted in the tabulations.

The data used in this study were collected throughout the year 1928. A possible error may have crept into the average, since the data were not collected on a single day. However, the variations in full-time hours of work were small during the last few years prior to 1928; and it is doubtful if the data would have been much different if they had been collected as of a single date. The averages computed could have been affected by the fact that not all workers in the same factory worked the same number of hours and that their respective numbers were affected by seasonal fluctuations. For this reason it seemed advisable to reject from consideration in this study establishments engaged in canning and preserving, in which industries the seasonal fluctuations are extremely large. An additional reason was that during the busy seasons no regular hours of work are kept.

During 1928, the year for which the data were used in this enquiry, the following laws were in force restricting the hours of work in Maryland manufacturing establishments:

1. Women were prohibited from working more than 10 hours a day or sixty hours a week, unless part of the work was done before six a. m. or after ten p. m., in which case their working hours were restricted to eight.¹⁵

¹⁵ Bagby, Md. Code Ann. (1924), art. 100, sec. 54.

2. Children under sixteen were prohibited from working more than six days a week, more than forty-eight hours in any week, and more than eight hours in any one day. All work after seven p. m. and before seven a. m. was prohibited.¹⁶

3. For employees of establishments incorporated in Maryland, and engaged in the manufacture of cotton or woolen yarns, fabrics or domestics of any kind, the day's work was restricted to ten hours.¹⁷

The enforcement of the laws mentioned above might compel the employer to maintain different working time schedules for men, women and children. As the study has shown, in but a few industries did the employees work ten or more hours a day, and those industries give employment almost exclusively to men. Thus, the legislative restriction, on the hours of work for women, though most likely effective in this direction in the days of its enactment, did not cause such differentiation in 1928 at least so far as manufacturing establishments in the City of Baltimore were concerned. Children of both sexes below sixteen form in general but a minority of the total number of employees, and their hours of work are often lower than those of adults in the plant. The majority of the employers evidently abide by the legislative standards, for few infractions of the law are recorded. The restrictions set by the Maryland Legislature with regard to working hours had ceased to be important, except with regard to the working hours of children, and therefore had almost no influence upon most of the data treated in the following pages.

NORTH CAROLINA DATA

The Department of Labor and Printing of North Carolina collected and published for a number of years statistics con-

¹⁶ Ibid., art. 100, sec. 24.

¹⁷ Ibid., art. 100, sec. 1. However, art. 100, sec. 2, provides that "no employer should be prohibited from making a contract with his male employees over the age of 21 years to work by the hour for such terms as may be agreed upon." This section is seemingly inconsistent with the provisions of the previous section.

cerning the various industries in the state.¹⁸ The last report was published in 1926,¹⁹ the Legislature of 1927 having amended the law, and omitted a provision for printing and paying for reports.²⁰ Thus, for the purposes of the following chapters, the data contained in the 1925-1926 report were used.

The data in this report are subdivided into a number of industrial groups²¹ and include information on hours of work, daily and weekly; wages paid, highest and lowest, by sex; and number of employees in the establishments. Information for each establishment is presented separately, thus permitting the tabulation of the information presented according to the needs of the present study.

As in the case of the Baltimore material, only establishments employing five or more employees were used in connection with this study. Information for a number of the establishments was rejected on this ground. It was also found necessary to reject the data for a number of establishments because the number of employees in the establishment, the type of product manufactured, or the number of hours worked were not stated. In addition inconsistencies were found in a few cases,²² for which reason the data were rejected. The data for the remaining establishments were tabulated according to the Manual of Classification of the Census of Manufacturers, 1929.

The following law²³ restricting the hours of work in North Carolina was in operation in 1925-1926, the period used in

There being no reported cases, it is impossible to state the attitude of the courts in the matter.

¹⁸ North Carolina Consolidated Statutes (1919), c. 120, a. 2, §§ 7311-7312.

¹⁹ North Carolina Department of Labor and Printing. 35th Annual Report, 1925-1926.

²⁰ Michie, North Carolina Code (1927), c. 120, a. 2, § 7312.

²¹ The following subdivisions were made in the table of contents: Cotton Mills, Wollen Mills, Silk Mills, Cordage, Knitting Mills, Furniture Factories, Tobacco Manufactures, Miscellaneous Industries, and Newspapers and Periodicals.

²² For example, such as reporting the daily hours of work at a figure so large or so small that it seems improbable that an individual would work that number of hours.

²³ N. C. Cons. St. (1919), c. 108, a. 1, § 6554.

this study: hours of labor were restricted to sixty a week for all adults and children employed in manufacturing, with the exception of cases in which a written contract existed between adult male employees and their employers, in which the latter agreed to pay extra compensation for the hours exceeding the legal maximum. The daily hours of work were restricted to eleven with the exception of certain types of labor.²⁴ No provisions for enforcing the law were made.

For various establishments in the state, the highest and lowest wages paid per day are given. It is likely that employers would differently interpret the question, "What is the highest wage paid in your establishment?" While some would respond with the wage of a minor executive, such as an overseer or foreman, others, whose establishments might be smaller, and who themselves did the work of supervision, would give the wage of the highest paid manual worker. Again, in numerous cases the wage of an office worker might be given. On the other hand, if we consider the lowest wage paid in a certain industry there is a great likelihood that in each establishment the wage would indicate the remuneration for a similar class of laborers. For the above reasons, only the lowest wages paid were considered for purposes of comparison with the length of the work-day.²⁵ In order further to safeguard the uniformity of occupations while considering the lowest wages paid, only those establishments which did not employ children were considered, on the assumption that children's wages would probably be lower.

The method pursued in the various inquiries in the first part of the study is essentially the same. The statistics of hours of labor and corresponding factors are studied to determine whether covariation seems to exist between the two variables. The observations are presented in correlation tables. We may see from such a table that corresponding to a certain value of one of the variables (or class of the variables), a number of values of the second variable would be

²⁴ Those exempt from the operation of the eleven hour law are engineers, firemen, superintendents, overseers, section and yard hands, office men, watchmen and repairers of breakdowns.

²⁵ See ch. iii, below.

found. If the values of this second variable are summarized by means of some measure of central tendency we will have a set of values where for each observation or class of observations of the first variable a certain definite value of the second variable will on the average exist. The variation in these values will tend to show whether or not certain tendencies are manifested in our data, and if so, what they are.

Occasionally it seemed desirable, in cases where fewer than three establishments represented a certain class in the correlation table, to consolidate it with the class next to it. This practice was followed only with classes represented by one or two establishments, on the assumption that three establishments would give sufficient evidence showing the tendency for concentration. The consolidation was carried out with the one of the two adjoining classes having the smallest number of terms.

The median was the average used throughout the first part of this study. The median can be as characteristic of a series as the arithmetic mean, with the additional advantage of being easily calculated.²⁶ The main objection to the median is that it does not lend itself to further numerical work,²⁷ an objection not relevant to this study, for no further numerical work is attempted. The exact location of the median was not determined; only the class interval in which the median is located was pointed out.²⁸ The existing tendencies in the sets of correlation tables were thus roughly indicated.

²⁶ Franz Žižek, *Statistical Averages*, p. 291.

²⁷ Arthur L. Bowley, *Elementary Manual of Statistics* (3d ed. rev.), p. 24.

²⁸ Throughout this study the class interval within which the median is located was denoted as "median class."

CHAPTER II

RELATIONS BETWEEN HOURS OF LABOR AND OTHER FACTORS

WORKING TIME AND SIZE OF ESTABLISHMENT

In his book, "Laws of Wages," H. L. Moore tried to prove in connection with his attempted statistical verification of various economic theories that, so far as the length of the working day was concerned, "the status of the laborer improves with the increasing concentration of industry."¹ He based his conclusions on material contained in the reports of the French Labor Office, giving the mean duration of daily hours of work, considered in relation to the size of the establishments, in the mines of France producing coal and other fuel.² The data as arranged by Professor Moore are contained in the following table.

TABLE I. Mean Duration of Daily Hours of Work, Considered in Relation to the Size of Establishments, in the Mines of France, Producing Coal and Other Fuel.

Locality	MEAN DURATION OF DAILY HOURS OF WORK ACCORDING AS THE ESTABLISHMENT HAD A NUMBER OF WORKMEN				
	Exceeding 999	From 500 to 999	From 100 to 499	From 25 to 99	From 1 to 24
Region Nord et Pas-de-Calais	8¾	9¼	9½	..	..
Region Est.....	8¾	..	9	..	10½
Region Centre.....	9	9¼	9½	10	..
Region Sud.....	9¾	9½	10	..	..
Region Sud-Est.....	..	8½	10	9½	..
Region Bouches- du-Rhône	..	8¼	8½	..	..

Professor Moore says: "This table eliminates the differences in hours of labor arising from the differences in locality, and it clearly shows that as a general rule, the hours of labor decrease as the size of the establishment increases."³

¹ Henry L. Moore, *Laws of Wages*, p. 193.

² Office du Travail. *Salaires et durée du travail dans l'industrie française, 1893-1897.*

³ Moore, p. 162.

Two earlier writers utilized the same data to come to similar results. The same dogmatism is seen in their arguments. "On le voit, plus l'entreprise est importante, plus grand est le nombre des ouvriers qu'elle emploie, et plus la durée du travail diminue; au contraire, moins elle occupe d'ouvriers, et plus la durée du travail augmente. Cela, pour ainsi dire, en règle absolue et sans exception."⁴ This is said notwithstanding the fact that the author noted two exceptions to that rule in his own tabulation. He remarks, however, that "ces exceptions disparaissent même et ces différences s'effacent, si l'on embrasse d'un coup d'oeil, et sans distinguer entre les régions, l'ensemble de l'industrie minière."⁵ The apotheosis is reached when the author declares: "La règle passe alors en axiome."⁶ The same attitude is seen in the succeeding French work, in which it is declared that "M. Charles Benoist a prouvé ingénieusement que la durée du travail dans les mines de combustible est en raison inverse de l'importance de ces mines mesurée par le nombre des ouvriers."⁷

Though under certain circumstances various relationships may be observed between economic phenomena, it is unwise to insist on the absolute nature of the relationship. With this idea in mind, another verification of this "law" was undertaken, only to reach results which disagreed considerably.

Out of the general body of data used in this investigation, thirteen industries in Baltimore City and fourteen located in North Carolina were selected, so as to include all industries represented by at least twenty establishments in each place. The purpose was two-fold: in the first place, to show the types of the interrelations between the hours of labor and the size of the establishments in each of the two geographical territories; and secondly, to compare similar industries in Baltimore with those in North Carolina in order to observe

⁴ Charles Benoist, "Le travail dans la grande industrie," in *Revue des Deux Mondes*, August 15, 1902, p. 856.

⁵ *Ibid.*

⁶ *Ibid.*

⁷ Louis Jacquot, *La réglementation de la durée du travail dans les mines*, p. 121.

similarities in the covariance between the extent of the working day and the number of workers employed in the establishments. The results seem to discourage the formulation of a definite law (Table II).⁸

TABLE II. Relation between the Daily Hours of Work and the Size of Establishments, in Selected Industries, Baltimore, Md., and North Carolina.

With the increased size of the establishment, the hours of labor	Baltimore	North Carolina	Both
Do not change.....	2	10	12
Increase	3		3
Decrease	1	1	2
Do not show any definite tendency....	7	3	10

It may be seen from the above table that of the thirteen industries in Baltimore, seven did not show any definite relationship between the hours of labor and the size of the establishment, as measured by the number of workers employed. In one industry the hours showed a decrease with the increased size of the plant, in three there was a movement in the opposite direction, while in two the hours of labor were not affected by the variations in the size of industrial units and remained constant. In North Carolina, ten industries showed no apparent change in the hours of work with the increased size of the establishments. In one industry the hours were shorter in larger factories and in three no definite relationship could be established.

Comparing similar industries in Baltimore and in North Carolina, we find in both places in the "Machinery, excluding Transportation Equipment" industry the number of hours worked varied inversely to the size of the establishment. "Furniture, including Office and Store Fixtures" factories, though operating in North Carolina the same median number of hours in all sizes of the business unit, had in Baltimore a tendency to have a longer working day in large shops. "Beverages," "Millwork" and "Printing and Publishing" industries also kept similar median hours of labor in establishments of all sizes in North Carolina; in Baltimore, how-

⁸ See Appendix B (Table XI) for detailed data.

ever, no definite relationship between the size of the establishments and the length of the working day was shown.⁹

The Maryland and North Carolina figures therefore do not confirm the hypothesis that the size of the establishments affects the hours of labor favorably or unfavorably. On the contrary, the hours appear to be independent of size of establishment.

HOURS OF LABOR AND WAGES

"Whether you work by the piece or work by the day,
Decreasing the hours, increases the pay."

This well-known slogan, adopted by the American Federation of Labor, has served a useful purpose in the fight waged by labor unions to reduce working hours. Throughout trade union literature we find similar arguments advanced in different versions. Thus, Samuel Gompers, asking himself the question "Do the wages increase when hours of labor are shortened?" finds but one answer: "I venture the assertion that in no industry in the whole world has there been the slightest deviation from the affirmative of this claim."¹⁰

A study of the effects of factory legislation in England on women's wages brought out the judgment that "it is not certain that there is always a direct connection between Fac-

⁹ It is interesting to note that the hours of labor in North Carolina seem to show a much smaller degree of dispersion from the central tendency than they do in Baltimore. It may conceivably result from a tendency toward shorter hours. The early communities took over from agriculture the system of labor from sunrise to sunset (John R. Commons and Associates, *History of Labour in the United States*, II, 171). All of the artisans worked more or less the same number of hours at the time. With the advent of industrialism the decrease in hours became a demand on the part of labor. Some masters had to reduce the hours of work while others still kept at the old level. For a time, hours were spread throughout the gamut of these two points, the shorter hours group gradually increasing their numbers. After a while the demands for still shorter hours made some of the employers reduce their hours further. While some employers thus reduced hours of labor considerably, others retained the much longer working day. As a result, the difference in working hours between the shops at the opposing extremes is now much greater in communities which are older industrially.

¹⁰ Samuel Gompers, *The Eight-Hour Workday*, p. 5.

tory Legislation and women's wages, but as a rule the effect of each limitation of the hours of labour has been to raise wages, though for a while they may have fallen a little."¹¹ Elsewhere in the same paper, the author remarks that he is not prepared to say how far this type of legislation has caused this increase.¹² In studying the effect of reduction of hours of labor on wages, we must always bear in mind that other forces may possibly produce similar effects.

Another way to study the relationship between the hours of labor and wages would be to consider similar plants in the same geographical region working different hours and to compare the hours with the wages paid. A recent study of wages in seven standard machine trades in Philadelphia brought out that "hourly earnings show a pronounced tendency to vary inversely, while weekly earnings show a less pronounced tendency to vary directly with the duration of working time."¹³

As economic relationships are apt to vary with the circumstances of time and place in which the data were collected, any additional demonstration of tendencies acts to further our belief in the possibility of economic generalizing. With this idea in mind an inquiry into the relationship between the wages and the hours of labor was attempted. The data collected in North Carolina were used for this purpose.¹⁴ The lowest wages paid to men in various industries were compared with the length of the working day. A table was constructed for each of the industries in which 25 or more establishments were found in North Carolina, showing this relationship. The findings were summarized by means of medians.¹⁵

Of the fourteen industries under consideration ten show that the median lowest daily wage paid to men in various

¹¹ G. H. Wood, "Factory Legislation Considered with Reference to the Wages, etc. of the Operatives Protected thereby," in the *Journal of the Royal Statistical Society*, 1902, lxx, 313.

¹² *Ibid.*, p. 309.

¹³ H. LaRue Frain, *An Examination of Earnings in Certain Standard Machine-Tool Occupations in Philadelphia*, p. 44.

¹⁴ See the discussion above of the North Carolina data.

¹⁵ See Appendix B (Table XII) for the general tables.

establishments did not vary with the length of the working day. Three industries show that with the increase in the daily hours of work the median lowest wage decreased. The remaining industry¹⁶ had to be omitted from consideration, for all but a very small number of establishments worked ten hours a day.

These results appear to indicate that there is a tendency for the *hourly rates* of wages to vary inversely with the number of hours of work. Whether the daily wage is the same, regardless of the length of the working day, or whether the daily wage is lower in plants working longer hours, the ratios of daily wage to the number of hours worked will show a decrease with the increased size of the divisor. In this respect the conclusions reached agree in the main with those of the study of the Philadelphia metal trades.¹⁷ In no case under consideration did the median daily remuneration in the plants working longer hours exceed that of shorter-hour plants. Whether this is a peculiarity of North Carolina is difficult to say, and to insist on a general rule would be unwarranted. The fact is presented for what it is worth.

HOURS OF LABOR AND WOMEN AND CHILDREN IN INDUSTRY

In most communities we find certain labor groups whose freedom of contract is restricted by the police power of the state. In the United States, generally speaking, the groups whose hours of employment are thus restricted are women and children. It has been noted, however, that occasionally, where a law restricting the hours of work for women and children had been passed, the general level of working hours was lowered for men as well.¹⁸ At the same time, an examination of inspection cards at the Office of the Commissioner of Labor and Statistics of Maryland will convince the investigator that often there exist differences among the hours of work for men, women, and children, even though the working

¹⁶ Furniture, including Store and Office Fixtures.

¹⁷ Frain, *supra*.

¹⁸ United States Women's Bureau, Bulletin No. 65, *The Effects of Labor Legislation on the Employment Opportunities of Women*, pp. 73-74.

hours of men and women are below the legislative standards for the latter.

The question naturally arises: Does any relationship exist between the length of the working day for each of the three groups in industry, male adults, female adults, and children? Prejudices, so persistently found in economic discussions, seem to indicate that there ought to be some such relationship. We may agree, with Edmund Burke, that prejudices are nothing but opinions for which we cannot find a reason; they are not necessarily incorrect.¹⁹ However, their truth must be tested, if the spirit of inquiry is to prevail.

Data on hours of labor in various industries in the City of Baltimore were utilized in connection with the present inquiry.²⁰ The medians of hours of labor for each of the industries as a whole, as well as for men, women and children separately, were calculated. The median working hours for men were then tabulated and compared with the corresponding median working hours for women and children.²¹ The results are set forth in the following table.

TABLE III. Median Daily Hours of Work for Men Compared with those of Women and Children, in Selected Industries, Baltimore, Md.

Median daily hours for men	Number of industries	Women working			Children working			No children in the industries
		same hours	fewer hours	more hours	same hours	fewer hours	more hours	
10	4	1	3	..	..	1	..	3
9—less than 10...	20	7	13	..	..	16	..	4
More than 8—								
less than 9.....	9	6	1	2	..	7	1*	1
8	20	17	1	2	15	1	..	4

* Only one child is employed in this industry.

A definite tendency can be detected from this tabulation. It appears that when the hours of work for men are low, there is a greater tendency for the hours of labor of women and

¹⁹ D. C. Somervell, *English Thought in the Nineteenth Century*, p. 6.

²⁰ All industries represented by five or more establishments were included.

²¹ See Appendix B (Table XIII) for the general tables.

children to be the same as that of the men. In industries working long hours, the hours for women and children show a tendency to be below the hours for men.

In four cases we find that the median hours worked by women exceed those of men. In three of those we find, on examining the original data, that the medians were affected by one relatively large establishment employing women on longer schedules. In the fourth case, the small number of women in the industry could easily affect the value of the median, thus making it unrepresentative.

Summarizing the findings above, we can conclude that the probability exists that the proportion of industries in which men and women work the same median number of hours gradually increases as we pass from long hour industrial groups to shorter hour ones. In the majority of the cases observed, the hours of men exceeded or equalled those of women and children.

An attempt has been made to evaluate the influence of women and children on the average hours of work in industry. The percentages of the working force that consisted of male adults were calculated for each of the industries in order to indicate the prevailing element. The results were tabulated,²² and as seen from table IV, did not show any well defined tendency. The possible exception is the seeming manifestation of higher medians in cases of marginal groups, at both the lower and upper limits. This evidence seems to point to

TABLE IV. Percentage of the Working Force Consisting of Male Adults Compared with Median Daily Hours of Work, in Selected Industries, Baltimore, Md.

Percentage of the working force consisting of male adults	Less than 8	8	More than 8— Less than 9	9— less than 10	10
25 and below.....	..	1	3	..	..
26 to 50.....	..	2	4	3	..
51 to 75.....	..	2	4	5	..
76 to 100.....	1	14	2	8	4
Median Class.....	76-100	76-100	26-50	75½	76-100

²² See Appendix B (Table XIV) for the general tables.

the tendency of establishments working either the shortest or longest hours to employ a majority of men. Industries employing mostly women and children seem to take the middle course. This evidence, however, cannot be taken as conclusive, since it may possibly be the result of conditions peculiar to Baltimore City. The only justification for mentioning it may be found in the informatory nature of such evidence.

PART II
THE MOVEMENT OF THE HOURS OF LABOR IN THE
UNITED STATES: 1890-1928

CHAPTER III
METHOD AND SCOPE

One of the aims of the working classes of the United States from the earliest times up to the present day has been the gradual shortening of the hours of labor. In the early period of American industrial development, following the example set by the agricultural communities, the working day lasted from sunrise to sunset. American workingmen early objected to these long hours, and the agitation for a shorter working day is as old in this country as the labor movement itself.¹ The gradual introduction of machine processes into industry brought to light the bad effect of long hours on health, safety, morals, and general welfare.² The evil results gradually became known to the public, with the result that most legislatures passed laws restricting the hours of work. Gradually also employers have been getting away from the idea that long hours are profitable, and are recognizing that a shorter working day benefits themselves, with the result that the hours of labor have been voluntarily reduced in many places.

The second part of this study attempts to trace the movement of hours of labor in the United States, the purpose being to show the movement of hours, to indicate how changing conditions may be described and measured, and briefly to examine the various forces affecting the changes that have come about.

¹ Cf. R. T. Ely, *History of Labor Movement in America*, or John R. Commons and Associates, *The History of Labor in the United States*.

² For further discussion see Felix Frankfurter and Josephine Goldmark, *The Case for the Shorter Work Day* (Reprinted by National Consumers' League).

In connection with this study, full-time hours of work³ per week, as distinguished from actual hours of operation, will be considered. It is possible that a degree of error is introduced because of the existing confusion between the full-time and actual hours of labor; but it is doubtful whether the error, if any, could influence the results to any great extent. It is desirable to study the full-time hours of operation, for they, and only they, actually indicate the progress made in reducing the hours of labor, the actual hours worked being influenced to a much greater extent by seasonal business fluctuations. It may also be observed that full-time hours indicate the standard and usually the practice of industry, and generally serve as a basis for estimating time and piece rates as well as showing roughly the amount of leisure enjoyed by the working classes.⁴

This study embraces the movement of hours of labor in the United States from 1890 to 1928. In this connection we must remember that in the United States, with its wide range of economic interests and with each state possessing power to regulate its internal affairs, national averages have very little meaning; for they may indicate conditions that do not actually exist in any state in the Union. Although the averages have considerable value in measuring the changes in industrial practices from year to year, one must be very careful in using them since changes in one part of the country may be nullified totally or partially by changes in the opposite direction in another section.⁵

In order to observe the movements of hours, what is proposed in this chapter is to compute from the data collected by the United States Bureau of Labor Statistics the average hours of labor for a number of selected industries. The data

³ The "full-time hours of work" are the hours a plant is supposed to be in operation under normal conditions, that is, when it is not working overtime or undertime. Throughout this study "hours of labor" will mean the full-time hours of work.

⁴ Cf. U. S. Women's Bureau, Bulletin No. 65, p. 65.

⁵ United States Bureau of Labor Statistics, Bulletin No. 265: Industrial Survey in Selected Industries in the United States, 1919, pp. 7-8.

presented by the Bureau⁶ can be divided into two groups, the first of which comprises information with regard to wages and hours obtained from trade-union officials, representing union scales of maximum hours and minimum wages; and the second of which includes the information secured directly from different establishments, whether the working force is union or non-union. The sampling method is resorted to for the collection of the latter data. From the census, from manufacturers' directories, and from books and periodicals the Bureau determines in which states the industry is of some importance. A list of the establishments to be included in the sample is prepared, and agents provided with special forms are sent out to collect the information. Data are collected for all employees in the establishments included in the sample and are tabulated by occupations. The union scales included in the first group of data are collected by the agents of the Bureau of Labor Statistics from different trade-unions generally in trades so widely organized that the results obtained are fairly representative of the conditions existing within the industry. In addition to the general figures, the Bureau computes index numbers for different occupations and trades.⁷

Various writers, in connection with their studies of real wages, have compiled index numbers of hours of labor in various industries, using materials collected by the Bureau of Labor Statistics.⁸ I. M. Rubinow, who covered the period from 1890 to 1912 for fifteen industries and trades, and Paul

⁶ United States Bureau of Labor Statistics, Bulletin No. 326: *Methods of Procuring and Computing Statistical Information of the Bureau of Labor Statistics* was consulted and utilized in the preparation of this section.

⁷ In order to compute the index numbers for different occupations, the Bureau uses a weighted arithmetic mean, in which the number of workers in each class serves as weight in the case of pay-roll data, and the number of trade-unionists in each of the cities surveyed in the cases of union data.

⁸ I. M. Rubinow, "The Recent Trend of Real Wages," in the *American Economic Review*, IV, 798-817; Paul H. Douglas and Frances Lamberson, "The Movement of Real Wages: 1890-1918," in the *American Economic Review*, XI, 409-426; Paul H. Douglas, *Real Wages in the United States: 1890-1926*.

H. Douglas and Frances Lamberson, who brought ten of these indexes up to 1918,⁹ have utilized the indexes computed by the Bureau of Labor Statistics up to 1907 and in a few cases up to 1912. These were, for each of the industries under consideration, the weighted averages of the occupational indexes. They chained with these the index numbers obtained by computing the simple arithmetic means of the occupational indexes calculated by the Bureau of Labor Statistics. Later, in his book on Real Wages, Douglas employed a weighted average of aggregates, using as weights the relative number of workers employed in each industry or trade (in the case of pay-roll data) or the relative number of the unionists employed in each occupation (in the case of union scales). Professor Douglas claims that the average of the aggregates would more faithfully represent the actual change in conditions; thus he says: "It is best . . . to treat the workers in one group as being on the average the same as those in another, and to compute an average of the aggregate wages and hours. . . ." ¹⁰ Another advantage in his estimation is that "it permits the base period to be shifted without introducing any error, whereas this is not possible when we deal only with relatives." ¹¹ However, if a comparison be made between the index number of working hours computed by averaging the simple occupational relatives of hours of labor and that made by averaging the weighted aggregates, the difference is extremely small. A possible explanation of this is that although great disparities in the course of wages between various occupations can be found within a single industry, the differences in the working hours are relatively small. While in the first case the weights will considerably affect the course of the index numbers, in the second case the difference between the two indexes would be negligible.¹²

In the present study the simple arithmetic average of rela-

⁹ Five industries were omitted by Douglas and Lamberson due to lack of data at the time.

¹⁰ Douglas, p. 87.

¹¹ Ibid.

¹² For Douglas' discussion of the preference of methods of computing index numbers of wages, see *ibid.*, pp. 84 ff.

TABLE V. Index Numbers, Hours of Labor, in Eleven Industries, in the United States, 1890-1928.

(Average 1890-99 = 100.0).

Year	Bakeries	Boot and Shoe	Building Trades	Cotton Goods	Foundry & Machine Shops	Iron and Steel: Blast Furnaces
1890	100.8	100.3	102.5	100.5	100.5	100.0
1891	100.8	100.6	101.8	101.2	100.4	100.0
1892	100.9	102.0	100.7	101.6	100.2	100.0
1893	100.5	100.0	100.5	100.0	100.0	100.0
1894	100.4	100.0	100.7	97.5	99.9	100.0
1895	99.9	100.0	100.3	99.8	100.1	100.0
1896	99.6	100.0	99.2	99.5	99.8	100.0
1897	100.2	99.8	98.6	99.1	99.7	100.0
1898	99.1	99.7	98.1	100.3	99.9	100.0
1899	97.8	99.6	97.5	100.3	99.4	100.0
1900	96.9	99.3	95.5	101.1	99.2	100.0
1901	96.3	99.6	94.4	99.9	98.1	100.0
1902	95.8	98.4	92.6	99.5	96.6	100.0
1903	93.9	97.0	91.8	99.3	95.4	100.0
1904	93.6	97.1	91.3	99.2	94.6	99.6
1905	92.5	96.8	91.2	99.2	94.8	100.6
1906	91.8	96.3	90.9	98.7	94.8	100.6
1907	91.6	96.0	90.6	97.5	94.6	100.6
1908	90.9	95.9	90.4	96.3	94.5	99.9
1909	90.7	95.7	90.3	96.4	93.9	100.2
1910	90.0	95.5	89.7	94.1	93.4	100.2
1911	87.6	95.3	89.5	94.1	93.0	100.1
1912	83.5	93.9	89.2	92.4	92.8	96.1
1913	82.4	93.1	88.9	92.2	92.3	98.0
1914	82.0	92.6	85.5	90.8	92.1	95.4
1915	82.0	92.4 ^a	85.4	91.7 ^a	92.1	95.3
1916	80.9	92.3	85.0	92.5	91.6	95.2 ^a
1917	80.5	90.3 ^a	84.8	90.7 ^a	89.8	95.2
1918	79.2	88.2	84.3	88.9	87.8	95.8 ^a
1919	76.4	85.3 ^a	88.0	85.8 ^a	85.6	96.4
1920	74.1	82.5	86.6	82.7	84.8	88.6
1921	74.5	82.5 ^a	86.5	83.5 ^a	85.6	88.8 ^a
1922	74.5	82.6	86.6	84.2	86.0	89.1
1923	74.4	82.8 ^a	86.6	84.3 ^a	86.0	80.3 ^a
1924	74.3	83.0	86.5	84.4	85.9	71.5
1925	74.0	82.9 ^a	86.4	84.6 ^a	85.2	71.1 ^a
1926	74.6	82.9	86.4	84.9	84.9 ^a	70.7
1927	74.4	82.9 ^a	86.2	85.2 ^a	84.7	b
1928	73.9	82.8	85.8	85.5	b	b

^a Determined by taking an arithmetic mean of the year preceeding and of the year following.^b Data lacking.

TABLE V (continued). Index Numbers, Hours of Labor, in Eleven Industries, in the United States, 1890-1928.

(Average 1890-99 = 100.0).

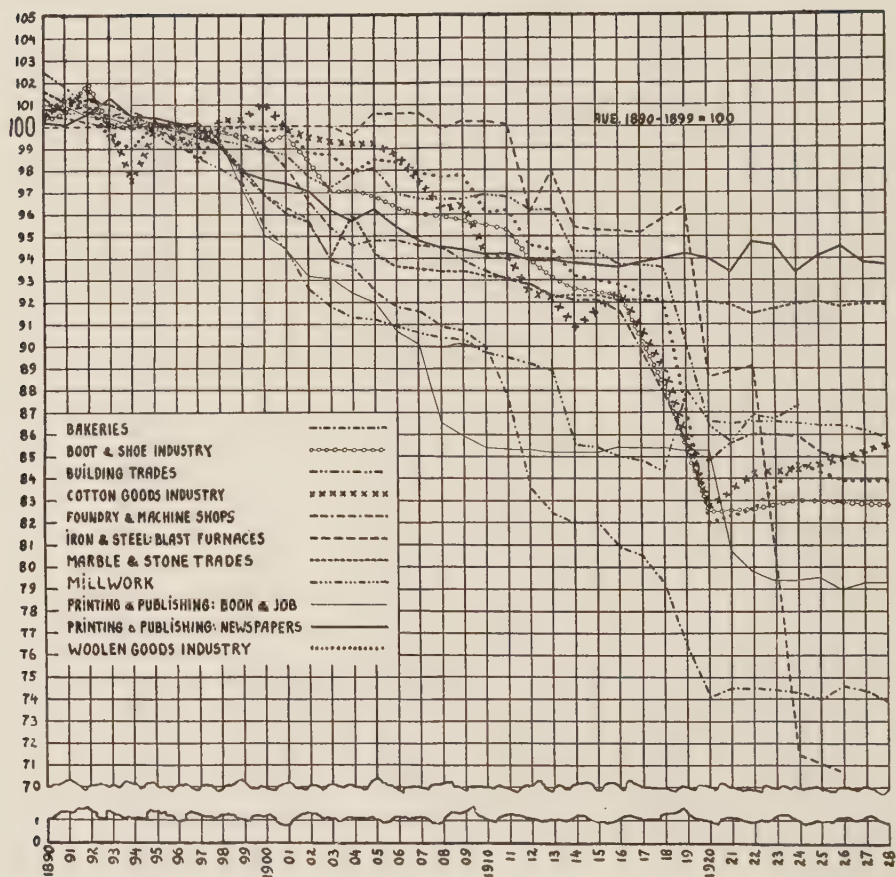
Year	Marble and Stone	Millwork	Printing & Publishing: Book & Job	Printing & Publishing: Newspapers	Woolen Goods
1890	101.6	101.3	101.0	100.2	101.0
1891	101.1	100.6	101.0	100.1	101.0
1892	101.2	100.7	100.5	100.6	101.0
1893	101.0	100.1	100.4	101.3	99.5
1894	100.5	100.3	100.1	100.5	99.0
1895	100.1	99.7	100.2	100.4	100.1
1896	99.9	99.0	100.1	100.2	100.1
1897	99.5	99.6	100.2	100.0	98.4
1898	99.2	99.4	99.4	99.1	99.9
1899	98.1	99.2	97.2	97.9	100.0
1900	96.9	98.9	95.1	97.6	99.8
1901	96.0	98.7	94.4	97.4	99.9
1902	95.6	97.7	93.2	97.1	98.8
1903	94.0	97.2	93.1	96.2	98.7
1904	96.0	97.9	92.4	95.7	97.9
1905	94.2	98.1	92.0	96.2	98.5
1906	93.6	96.9	90.7	95.4	98.4
1907	93.5	96.7	90.1	94.8	97.9
1908	93.4	96.7	86.5	94.5	97.7
1909	93.4	96.7	85.9	94.4	97.8
1910	93.2	96.9	85.4	94.2	96.1
1911	93.1	96.8	85.3	94.2	96.2
1912	92.8	96.2	85.3	93.9	94.6
1913	92.2	96.2	85.2	93.9	94.4
1914	92.3	94.3	85.2	93.8	93.2
1915	92.3	94.3	85.2	93.7	93.0a
1916	92.1	93.7	85.4	93.6	92.8
1917	92.1	93.7	85.4	93.8	92.4a
1918	92.0	93.6	85.4	94.0	92.0
1919	92.0	90.1	85.3	94.2	87.0a
1920	92.0	86.4	85.3	94.0	82.0
1921	91.9	85.7	80.7	93.4	82.3a
1922	91.5	86.9	79.8	94.7	82.6
1923	91.7	86.7	79.4	94.6	83.7a
1924	91.9	87.3	79.4	93.4	84.7
1925	92.0	b	79.5	94.1	84.3a
1926	91.8	b	79.0	94.5	83.9
1927	91.9	b	79.3	93.8	83.9a
1928	91.9	b	79.3	93.7	83.9

^a Determined by taking an arithmetic mean of the year preceding and of the year following.

^b Data lacking.

CHART I.

HOURS OF LABOR, IN 11 INDUSTRIES, IN THE U. S.: 1890-1928.

INDEX
NUMBERS

tives of the occupations was used throughout. The index numbers constructed by Rubinow and by Douglas and Lamberson were revised and brought up to date. The index numbers for the eleven industries and trades were thus computed for the years from 1890 to 1928, using as their base the average for the years from 1890 to 1899.¹³ (Table V, Fig. I).

As the data for a number of industries at different times were collected every two years instead of yearly, the figures for the intermediate years were determined by taking an arithmetic mean of the year preceding and the year following the year for which the information was lacking. In this manner figures were secured from which a combined index of hours of labor for the eleven industries was computed by taking a simple arithmetic mean of the eleven indexes¹⁴ (Table VI, Chart II).

TABLE VI. Movement of Hours of Labor, for Eleven Industries Combined, in the United States, 1890-1928.

(Average 1890-99 = 100.0).

Year	Index of Hours	Year	Index of Hours	Year	Index of Hours	Year	Index of Hours
1890...	100.9	1900...	98.2	1910...	93.5	1920...	85.5
1891...	100.8	1901...	97.7	1911...	93.3	1921...	86.0
1892...	100.9	1902...	96.8	1912...	92.0	1922...	85.8
1893...	100.3	1903...	96.1	1913...	91.8	1923...	84.7
1894...	99.9	1904...	95.9	1914...	90.8	1924...	83.9
1895...	100.1	1905...	95.8	1915...	90.8	1925...	83.4
1896...	99.8	1906...	95.3	1916...	90.6	1926...	83.4
1897...	99.6	1907...	94.9	1917...	90.0	1927...	84.7
1898...	99.5	1908...	94.2	1918...	89.3	1928...	84.6
1899...	98.8	1909...	94.1	1919...	87.8		

In order to test the reliability of the index numbers com-

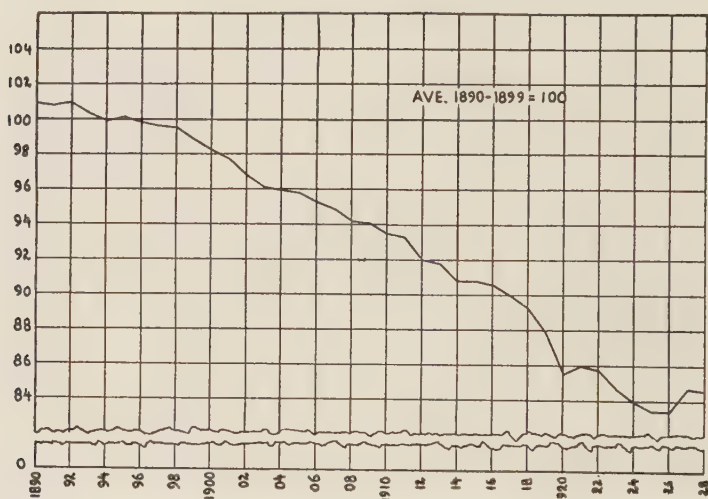
¹³ See Appendix C for the list of industries and trades, and for the list of bulletins used in the preparation of the index numbers.

¹⁴ In computing the group averages, Professor Douglas used the following method: The averages of the hours of labor were multiplied by the relative number of persons employed in that industry during the year under consideration. The sum of the products was then divided by the sum of weights. (Douglas, p. 93.) The difference between the index of hours of labor in all manufacturing industries computed by Douglas (*ibid.*, p. 116) and the index for eleven industries combined, used in the present study, is very small.

puted, it was desirable to check them with the index numbers computed from the data collected by the Census Bureau. The Bureau of Census of the Department of Commerce ¹⁵ col-

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CHART II.



HOURS OF LABOR, IN 11 SELECTED INDUSTRIES, IN THE U. S.: 1890-1928.

lected data on hours of labor in connection with its Census of Manufactures for the years 1909, 1914, 1921, and 1923. The information asked for by the Census schedules called for "hours normally worked by wage-earners" per week, inquiring merely for the prevailing practice followed in different establishments and disregarding slight variations in individual establishments. Since in most places all employees work the same number of hours, the error thus introduced must be very slight.

For the years 1909, 1914, and 1919, the data were presented for the United States as a whole and by geographical divisions. This practice was abandoned in the 1921

¹⁵ In addition to Census publications, Paul F. Brissinden's *Earnings of Factory Workers* has been consulted and utilized in the preparation of this section.

and 1923 census, in which information is presented for the United States only. Data are generally presented in the form of a frequency table¹⁶ from which the averages may be computed in the usual manner. The mid-point of an interval is taken to represent the interval and is multiplied by the number of workers in the interval; the results are then added up and divided by the total number of wage-earners during that particular year. Taking the year 1909 as a base, index numbers were then computed.¹⁷ The indexes obtained from the Bureau of Labor Statistics data for the years during which the Census data were collected were taken and the base was shifted to 1909.¹⁸ The agreement between the two sets of index numbers seems to be pretty satisfactory, as evidenced by table VII, presenting actual deviations for each of the years under consideration, and the average deviations for the aggregate of five dates. Of the nine industries under consideration, in five cases the average deviation is smaller than 1; in two cases it lies between 1 and 2, and in two cases

TABLE VII. Actual Deviations Between Index of Hours Based on Census Data and Index of Hours Based on the Bureau of Labor Statistics Data.

(1909 = 100.0).

Year	Bakers	Boot and Shoe	Cotton Goods	Foundry & Machine Shops	Iron and Steel Blast Furnaces	Millwork
1909	0	0	0	0	0	0
1914	-5.0	-.3	-1.9	+ .1	0	0
1919	-2.2	+2.0	-.2	-.5	+9.8	0
1921	-4.7	.6	-2.3	+1.8	-2.4	-1.6
1923	-4.8	-.3	-2.6	+ .2	-3.4	-1.0
Average		.				
Deviation	3.3	.6	1.4	.5	3.1	.5

¹⁶ See, for example, Census of Manufactures (1923), p. 1150.

¹⁷ The Census of Manufactures collects only data for the establishments working under the factory system, and it was impossible to find comparable figures for the Building Trades and Marble and Stone Trades.

¹⁸ For the woolen goods, cotton goods, and boot and shoe industries, the Bureau of Labor Statistics did not collect data for the Census years 1919, 1921, and 1923. Therefore, in order to secure figures to be compared with those in the Census, arithmetic averages of the single years preceding and the following years under consideration were taken.

TABLE VII (Continued).

Year	Printing & Publishing: Book & Job	Printing & Publishing: Newspapers	Woolen Goods
1909	0	0	0
1914	+ .6	0	—1.1
1919	+ .3	+ .8	+1.6
1921	—1.3	+1.6	—3.3
1923	^a	^a	—1.9
Average			
Deviation	.6	.6	1.6

^a Data were collected by the Census under a different classification.

between 3 and 3.5. The close correspondence between the two sets of index numbers, especially when union-scales of hours of labor were used, shows how well the data represents the actual trends in the industries considered. The disparity between the two sets may be due either to the slight difference in the methods used in computing the averages, or to the fact that the information was collected on different dates.

CHAPTER IV

THE MOVEMENT OF HOURS OF LABOR

The measurement of the changes in the hours of labor may be best undertaken first for the eleven industries combined. It seems best to analyze the movement of hours from year to year and to follow this by a study of the rate of change in the full thirty-eight year period from 1890 to 1928. Once this general rate is determined, estimates may be made of differences in the rate of change for each of the eleven industries separately.

The first task is then to measure the change in hours of labor from one year to the next. This may be done best by taking each of the given years in turn as a base, in which case the percentage figure for the year following will show the relative change in hours of labor. It is these percentage changes from year to year, computed from the index of hours of labor for eleven industries combined, as shown in table VIII and on Chart III, that we are now to examine.

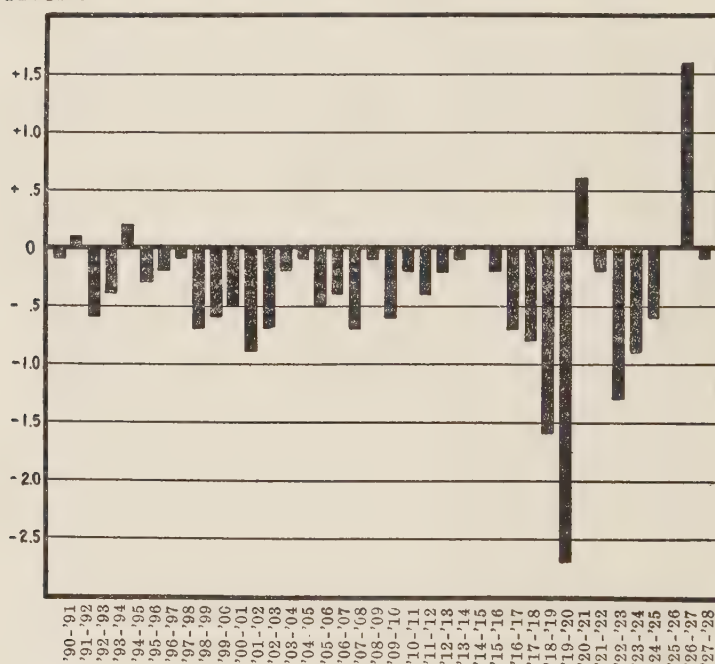
TABLE VIII. Per Cent of Changes in Hours of Labor, for Eleven Industries Combined, in the United States, from Year to Year: 1890-1928.

Yearly Periods	Per Cent of Increase (+) or Decrease (—)	Yearly Periods	Per Cent of Increase (+) or Decrease (—)
1890-1891	— .1	1910-1911	— .2
1891-1892	+ .1	1911-1912	— .4
1892-1893	— .6	1912-1913	— .2
1893-1894	— .4	1913-1914	— .1
1894-1895	+ .2	1914-1915	0
1895-1896	— .3	1915-1916	— .2
1896-1897	— .2	1916-1917	— .7
1897-1898	— .1	1917-1918	— .8
1898-1899	— .7	1918-1919	—1.6
1899-1900	— .6	1919-1920	—2.7
1900-1901	— .5	1920-1921	+ .6
1901-1902	— .9	1921-1922	— .2
1902-1903	— .7	1922-1923	—1.3
1903-1904	— .2	1923-1924	— .9
1904-1905	— .1	1924-1925	— .6
1905-1906	— .5	1925-1926	0
1906-1907	— .4	1926-1927	+1.6
1907-1908	— .7	1927-1928	— .1
1908-1909	— .1		
1909-1910	— .6		

CHART III.

CHANGES IN HOURS OF LABOR, FOR 11 INDUSTRIES, IN THE UNITED STATES, FOR YEARLY PERIODS: 1890-1928.

PER CENT

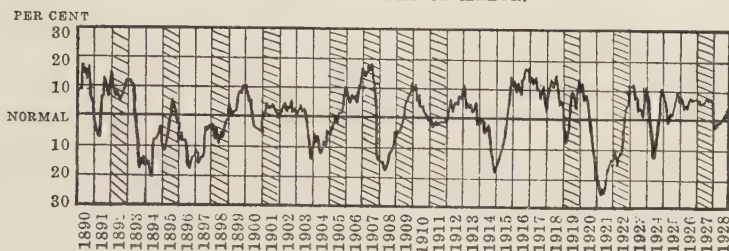


The per cent of change in hours of labor from year to year is far from being uniform, the fluctuations in the rate of change following a certain regularity. Comparing these periods with those of the business cycle, as shown on Chart IV by the index of the "Volume of Business compared with Normal" of the American Telephone and Telegraph Company, we see a rough correspondence between the duration of the business cycle (from one period of prosperity to another) and the period from one peak fall in the rate of change in hours of labor to another. Probably, a closer relationship of

the fluctuations in the rate of change of hours of work to the business cycle could be shown, were the monthly data for the hours of labor available. Examining the fluctuations in the

CHART IV.

THE AMERICAN TELEPHONE AND TELEGRAPH COMPANY'S INDEX OF
 "GENERAL BUSINESS COMPARED WITH NORMAL" COMPARED
 WITH PERIODS OF FLUCTUATIONS IN THE RATE OF
 CHANGE OF HOURS OF LABOR.



The shaded portions indicate the year in which the rate of fall in hours of labor was greater as compared with the years preceding and following it (Cf. Chart III).

rate of change of hours of labor, we find that generally the rate of change is greatest at the beginning of the cycle and decreases gradually throughout the life of the cycle. This, however, was upset during the war period, when a gradual increase in the rate of change occurred over the period of five years from 1915 to 1920.

The most striking feature of the thirty-eight year period as a whole is the persistent downward movement which was reversed only four times during the whole period. The total decrease in working hours throughout this time amounted to 17.5 per cent or, on the average, to approximately .5 per cent per annum. But one must not suppose that this decrease has occurred in all industries under consideration to the same extent, for some decreased more rapidly than the others. It is important, therefore, to supplement the record for the eleven industries combined with an account of the differences

in the movement of hours in each of the industries individually. This will now be attempted.

The rate of change in the working week for the eleven industries combined, discussed previously, is a composite of series which did not share alike or at the same time the reductions or increases in working time (Table IX and Chart V). During this period fluctuations in the rate of change from year to year varied widely not only from industry to industry, but within a single industry as well. The details for the eleven industries under consideration may be examined first. A number of contrasts are to be noted. The greatest decrease from 1890 to 1928 in weekly working hours is found in the Bakery trades, with a decrease of 26.7 per cent, with the Book and Job printers following next with 21.5 per cent. The Woolen Goods, Cotton Goods, Boot and Shoe, and Building industries show a decrease fluctuating between 14.5 and 17.5 per cent, while the Marble and Stone industry and the Newspaper printers show the smallest decreases, these being but 9.6 and 6.5 per cent respectively.¹

The range of fluctuations in the rates of yearly changes in working hours varies widely from industry to industry. Hours in blast-furnaces, following a thirteen-year period from 1890 to 1903, during which no changes in working hours occurred, experienced a number of rather violent changes. This may be explained, in part, by the fact that blast-furnaces are operated on twenty-four hour schedules, seven days a week, necessitating either a two-shift twelve-hour day or a three-shift eight-hour day. In other industries the decreases in hours were more gradual, although a number of sharp increases and decreases in working time occurred. In numerous cases, the rate of fall in the length of the working week was greater during the war period. There were some exceptions to this tendency. The Marble and Stone industry and the Building trades show increases of 1.1 and 4.4 per cent re-

¹ The other three industries for which data are lacking for the last few years show decreases as follows: Iron and Steel (Blast furnaces) Industry—29.3 per cent between 1890 and 1926; Foundry and Machine Shops—15.7 per cent between 1890 and 1927; Millwork Industry—13.8 per cent between 1890 and 1924 (See Table X).

TABLE IX. Per Cent of Change in Hours of Labor, for Eleven Industries, by Industries, in the United States, from Year to Year: 1890-1928.

Yearly Periods	Bakeries	Boot and Shoe	Building Trades	Cotton Goods	Foundry & Machine Shops	Iron and Steel: Blast Furnaces
'90-'91	0	+ .3	— .7	+ .7	— .1	0
'91-'92	+ .1	+1.4	—1.1	+ .4	— .2	0
'92-'93	— .4	—2.0	— .2	—1.6	— .2	0
'93-'94	— .1	0	+ .2	—2.5	— .1	0
'94-'95	— .5	0	— .4	+2.4	+ .2	0
'95-'96	— .3	0	—1.1	— .3	— .3	0
'96-'97	+ .6	— .2	— .6	— .4	— .1	0
'97-'98	—1.1	— .1	— .5	+1.2	+ .2	0
'98-'99	—1.3	— .1	— .6	0	— .5	0
'99-'00	— .9	— .3	—2.1	+ .8	— .2	0
'00-'01	— .6	+ .3	—1.2	—1.2	—1.1	0
'01-'02	— .5	—1.2	—1.9	— .4	—1.5	0
'02-'03	—2.0	—1.4	— .9	— .2	—1.2	0
'03-'04	— .3	+ .1	— .5	— .1	— .8	— .4
'04-'05	—1.2	— .3	— .1	0	+ .2	+1.0
'05-'06	— .8	— .5	— .3	— .5	0	0
'06-'07	— .2	— .3	— .3	—1.2	— .2	0
'07-'08	— .8	— .1	— .2	—1.2	— .1	— .7
'08-'09	— .2	— .2	— .2	+ .1	— .7	+ .3
'09-'10	— .8	— .2	— .7	—2.4	— .5	— .1
'10-'11	—2.6	— .2	— .3	0	— .5	— .1
'11-'12	—4.7	—1.5	— .3	—1.8	— .2	—4.0
'12-'13	—1.3	— .9	— .4	— .2	— .5	+2.0
'13-'14	— .6	— .5	—3.7	—1.5	— .2	—2.7
'14-'15	0	— .1 ^a	— .2	+ .9 ^a	0	— .1
'15-'16	—1.3	— .1 ^a	— .4	+ .9 ^a	— .8	0 ^a
'16-'17	— .5	—2.2 ^a	— .3	—1.9 ^a	—1.9	0 ^a
'17-'18	—1.6	—2.2 ^a	— .6	—1.9 ^a	—2.2	+ .6 ^a
'18-'19	—3.5	—3.2 ^a	+4.4	—3.5 ^a	—2.5	+ .6 ^a
'19-'20	—2.9	—3.2 ^a	—1.6	—3.5 ^a	—1.0	—8.1
'20-'21	+ .4	0 ^a	— .1	+ .9 ^a	+1.0	+ .3 ^a
'21-'22	+ .1	0 ^a	+ .1	+ .9 ^a	+ .4	+ .3 ^a
'22-'23	— .2	+ .2 ^a	0	+ .1 ^a	0	—9.8 ^a
'23-'24	— .1	+ .2 ^a	0	+ .1 ^a	— .1	—9.8 ^a
'24-'25	— .4	0 ^a	— .1	+ .3 ^a	— .9	— .5 ^a
'25-'26	+ .9	0 ^a	0	+ .3 ^a	— .3 ^a	— .5 ^a
'26-'27	— .3	0 ^a	— .2	+ .3 ^a	— .3 ^a	b
'27-'28	— .7	0 ^a	— .5	+ .3 ^a	b	b

^a Estimated from the data collected every two years, assuming that the rate of change was the same during the two-year period.

^b No data available.

TABLE IX (continued). Per Cent of Change in Hours of Labor, for Eleven Industries, by Industries, in the United States, from Year to Year: 1890-1928.

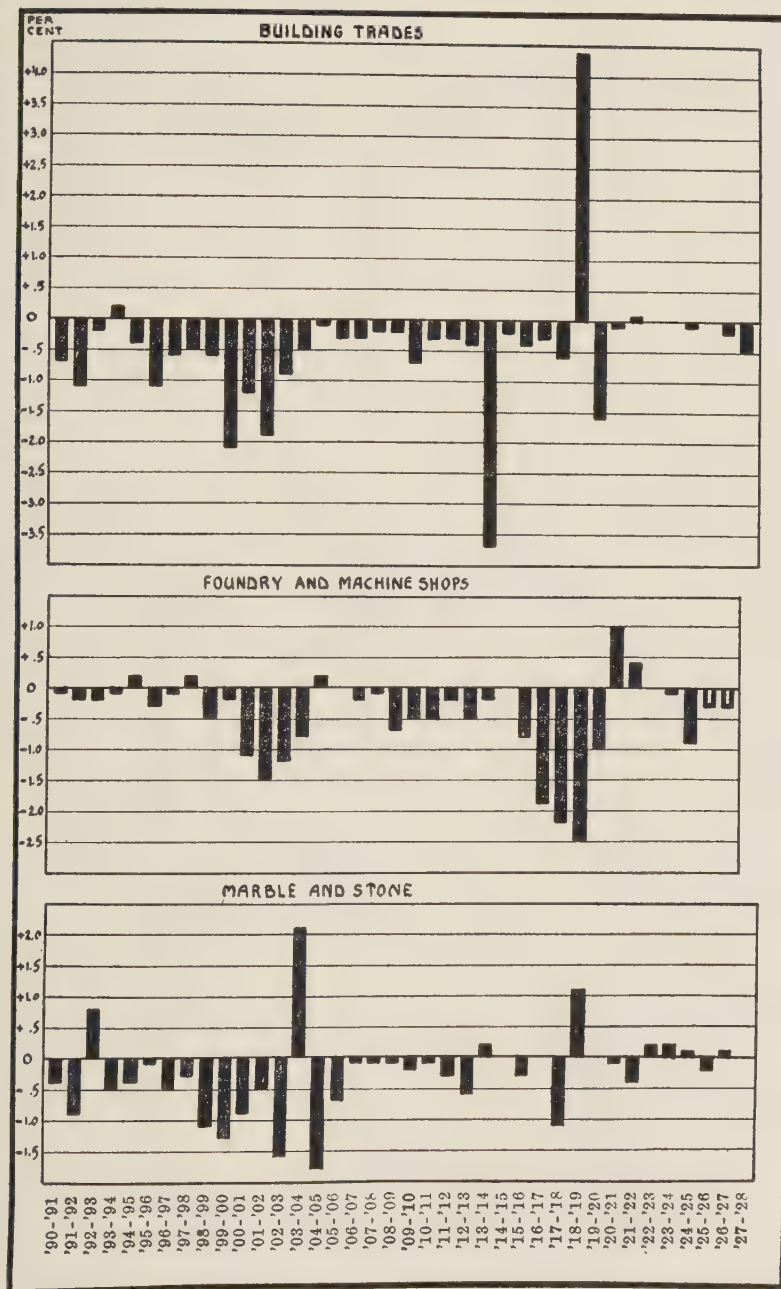
Yearly Periods	Marble and Stone	Millwork	Printing & Publishing: Book & Job	Printing & Publishing: Newspapers	Woolen Goods
'90-'91	— .4	— .7	0	— .1	0
'91-'92	— .9	+ .1	— .5	+ .5	0
'92-'93	+ .8	— .6	— .1	— .3	—1.5
'93-'94	— .5	+ .2	— .3	+ .2	— .5
'94-'95	— .4	— .6	+ .1	— .1	+1.1
'95-'96	— .1	— .7	— .1	— .2	0
'96-'97	— .5	+ .6	+ .1	— .2	—1.7
'97-'98	— .3	— .2	— .6	— .9	+1.5
'98-'99	—1.1	— .2	—2.2	—1.2	+ .1
'99-'00	—1.3	— .3	—2.2	— .3	— .2
'00-'01	— .9	— .2	— .7	— .2	+ .1
'01-'02	— .5	—1.0	—1.3	— .3	—1.1
'02-'03	—1.6	— .5	— .1	— .9	— .1
'03-'04	+2.1	+ .7	— .8	— .5	— .8
'04-'05	—1.8	+ .2	— .4	+ .5	+ .6
'05-'06	— .7	—1.2	—1.4	— .8	— .1
'06-'07	— .1	— .2	— .7	— .6	— .5
'07-'08	— .1	0	—4.0	— .3	— .2
'08-'09	— .1	0	— .7	— .1	+ .1
'09-'10	— .2	+ .2	— .5	— .3	—1.7
'10-'11	— .1	— .1	— .1	+ .1	+ .1
'11-'12	— .3	— .6	0	— .4	—1.7
'12-'13	— .6	0	— .1	0	— .2
'13-'14	+ .2	—2.0	0	— .1	—1.3
'14-'15	0	0	0	— .1	— .2 ^a
'15-'16	— .3	— .7	+ .2	— .1	— .2 ^a
'16-'17	0	0	0	+ .2	— .4 ^a
'17-'18	—1.1	— .1	0	+ .3	— .4 ^a
'18-'19	+1.1	—3.7	— .1	+ .2	—5.4 ^a
'19-'20	0	—4.1	0	— .2	—5.4 ^a
'20-'21	— .1	— .9	—5.4	+ .4	+ .3 ^a
'21-'22	— .4	+1.1	—1.2	+1.3	+ .3 ^a
'22-'23	+ .2	— .2	— .5	— .1	+1.2 ^a
'23-'24	+ .2	+ .7	0	—1.3	+1.2 ^a
'24-'25	+ .1	b	+ .2	+ .8	— .4 ^a
'25-'26	— .2	b	— .6	+ .4	— .4 ^a
'26-'27	+ .1	b	+ .3	— .8	0 ^a
'27-'28	0	b	+ .1	— .1	0 ^a

^a Estimated from the data collected every two years, assuming that the rate of change was the same during the two-year period.

^b No data available.

CHART V.

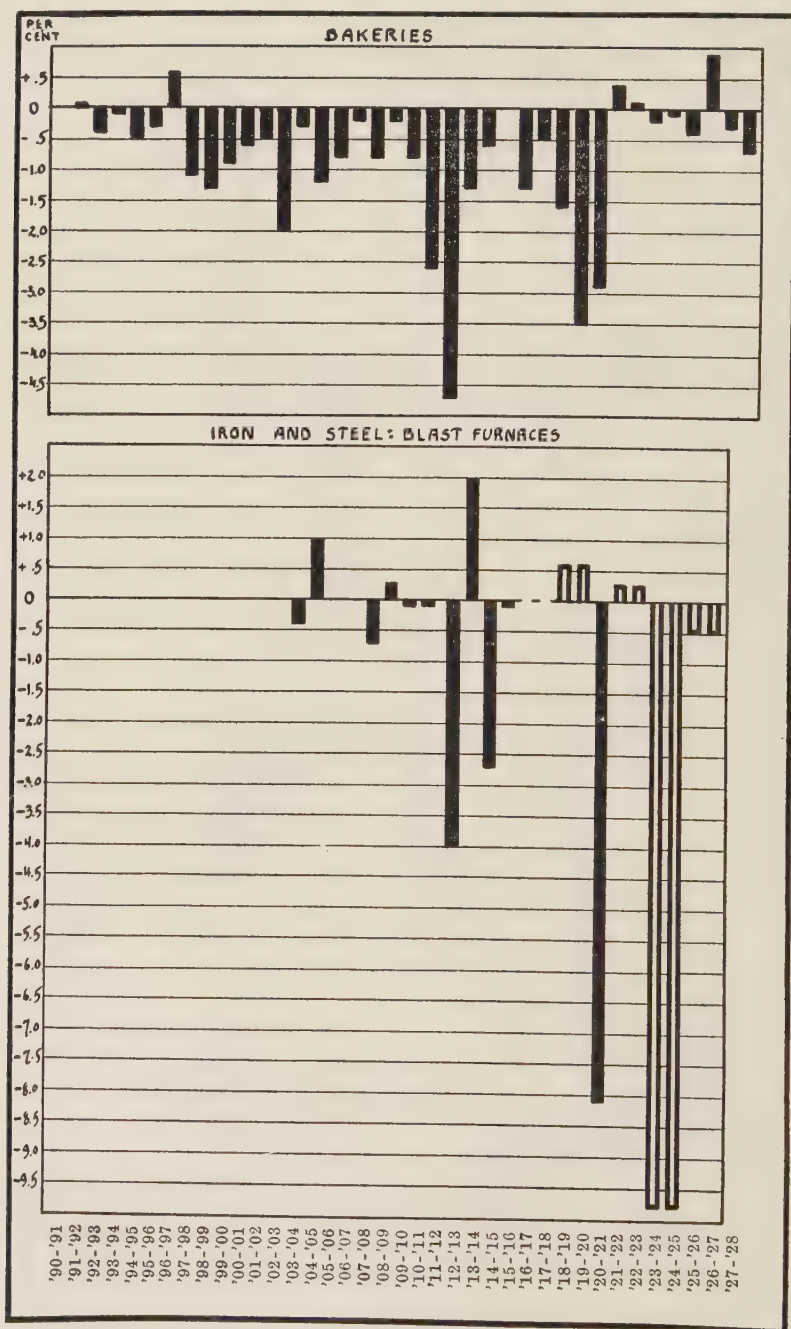
CHANGES IN HOURS OF LABOR, BY INDUSTRIES, IN THE U. S.: 1890-1928



Solid bars represent changes based on annual data.
 Open bars represent changes based on bi-annual data.

CHART V (continued).

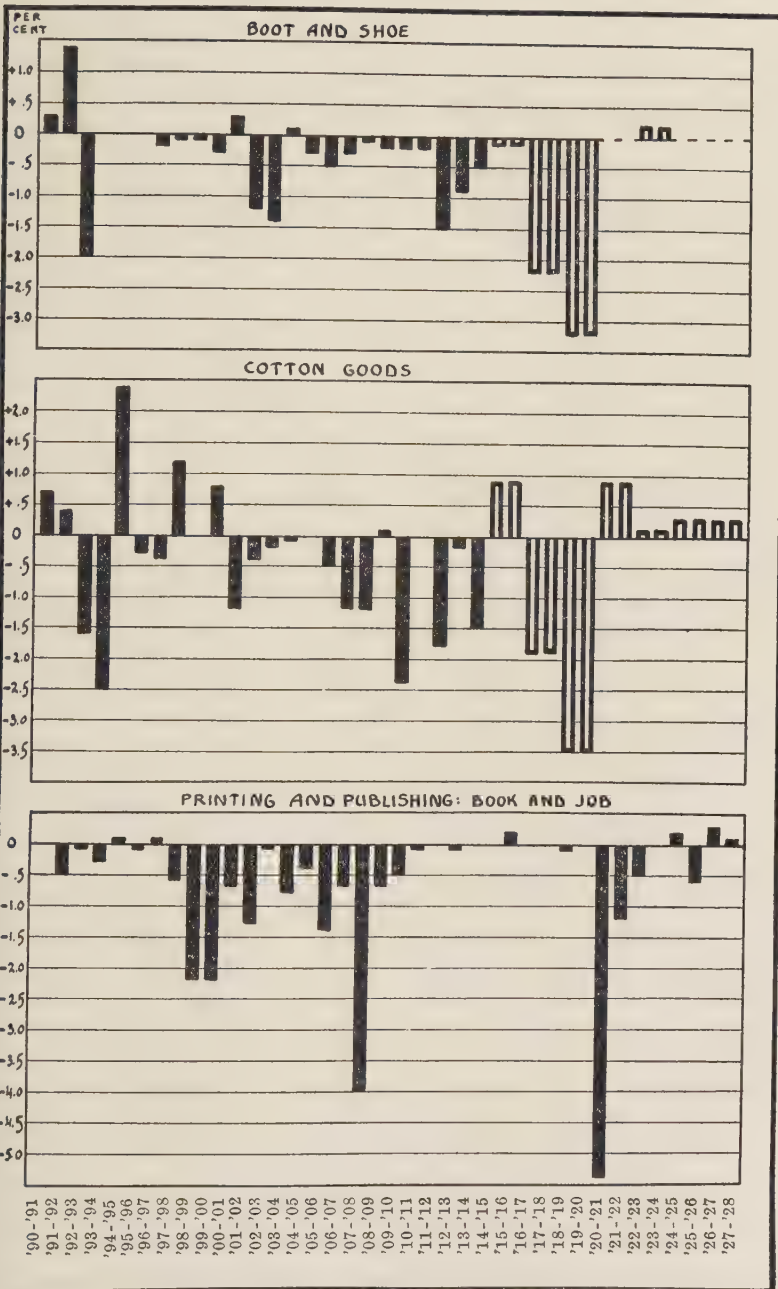
CHANGES IN HOURS OF LABOR, BY INDUSTRIES, IN THE U. S.: 1890-1928



Solid bars represent changes based on annual data.
 Open bars represent changes based on bi-annual data.

CHART V (continued).

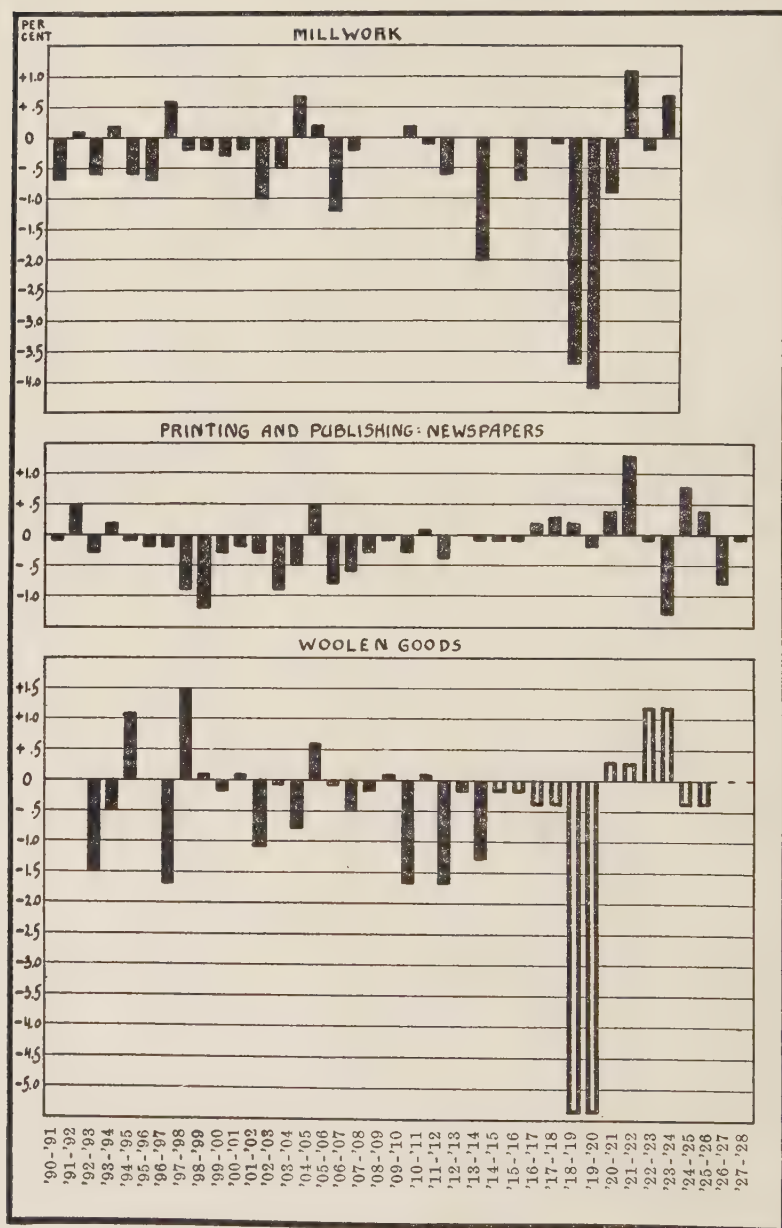
CHANGES IN HOURS OF LABOR, BY INDUSTRIES, IN THE U. S.: 1890-1928



Solid bars represent changes based on annual data.
 Open bars represent changes based on bi-annual data.

CHART V (continued).

CHANGES IN HOURS OF LABOR, BY INDUSTRIES, IN THE U. S.: 1890-1928



Solid bars represent changes based on annual data.
 Open bars represent changes based on bi-annual data.

spectively in their working time during 1918. Another interesting fact is the unprecedented rise in hours of labor in a number of industries in the period following 1920.

The index numbers showing the movement of hours from 1890 to 1928, it must be borne in mind, express nothing but the tendencies, without giving an actual picture of the average working hours either in 1890 or in 1928. Although the fall in the working week of the newspaper printers was but 6.5 per cent in thirty-eight years, they work at the present time on the average about 45.1 hours a week, indicating that considerable advance had been made by the industry before 1890. On the other hand, the blast-furnace workers, with their industry reporting a fall in hours of 29.6 per cent between 1890 and 1926, worked in 1926 for 59.8 hours, the longest of any of the industries considered in this study. Table X contains the number of hours in the full-time working week for 1890 and 1928 in the eleven industries studied, and indicates the changes that have occurred during this period.

TABLE X. Average Hours of Labor per Week in Eleven Industries, in the United States, 1890 and 1928.

Industry	Average Hours per Week 1928	1890	Per Cent of Decrease During the Period
Bakeries	47.4a	64.7	26.7
Boot and Shoe.....	49.1b	59.5	17.5
Building	43.5a	52.0	16.3
Cotton Goods.....	53.4c	62.8	14.9
Foundry and Machine Shops...	50.4d	59.8	15.7
Iron and Steel:			
Blast Furnaces.....	59.8e	84.6	29.3
Marble and Stone.....	44.0a	54.7	9.6
Millwork	44.8f	52.0	13.8
Printing and Publishing:			
Book and Job.....	44.3a	56.4	21.5
Printing and Publishing:			
Newspapers	45.1a	48.2	6.5
Woolen Goods.....	49.3g	58.9	16.3

SOURCE: United States Bureau of Labor Statistics Bulletins: (a) No. 482; (b) No. 498; (c) No. 492; (d) No. 471 (Data for 1927 estimated); (e) No. 442 (Data for 1926); (f) No. 388 (Data for 1924); (g) No. 487.

Figures for 1890 were estimated from index numbers as in Table V.

As we have seen, with the advance of machine civilization, the length of the working week has gradually decreased. How far this process will go on, it is impossible to say. An indication of the amount of probable decrease is afforded by the fact that industries having shorter hours in 1890 show a smaller decrease in their working hours during the thirty-eight years under consideration than industries of long hours. Thus, the possibility of the existence of a lower limit for the duration of a working week seems to exist, although this lower limit is probably shifting periodically with the advance of the machine age.

CHAPTER V

THE REDUCTION IN WORKING HOURS

Numerous factors are at work to reduce the hours in industry. Some of these, like trade-union activity, restrictive legislation, competition for labor, *actively force* reductions in working hours; while others, like those resulting from improved methods of production, will *passively permit* such reductions. It is proposed to examine briefly the workings of some of these forces.

Introduction of new machinery and its substitution for skilled labor is one of the factors permitting at times a reduction in working hours.¹ The mechanical progress of industry has increased labor efficiency to such an extent as to permit the reduction of hours without considerable losses in the output; in this way the introduction of newer technological processes counterbalances the reduction in the length of the working time. It is possible in a number of cases that with the introduction of machinery, the strain the worker has to bear increases, making him less efficient. In this case a reduction of hours would somewhat increase his output per hour of work. But such could hardly be the case of a reduction in working hours over a long period of time.

Introduction of machinery and of improved methods of production may be utilized by the trade unions² and by progressive employers³ to bring about the reduction of hours. But the reduction of hours will not always follow this path. Trade unions constantly agitate for shorter hours and at times consider the reduction of hours more important than the question of wages.⁴ They advance different theories at

¹ Cf. for example, F. W. Taussig, *Principles of Economics* (2d ed. rev.), II, 295.

² Cf. for example, G. E. Barnett, *Printers*, p. 150.

³ Cf. for example, United States Bureau of Labor Statistics Bulletin No. 407, *Labor Cost of Production and Wages and Hours of Labor in the Paper Box-Board Industry*, p. 1.

⁴ See for example, *Proceedings of the Convention of American Federation of Labor*, 1886, p. 9.

different times as to the desirability of shorter hours,⁵ and at times, when their strength permits, will enforce shorter hours even if production suffers as a result. The possible explanation of greater decreases in the working hours during the period of prosperity is that the employers are more likely to yield to the demands of the workers than during times of depression, when they can afford to lock their working force out or when they can find an ample supply of strikebreakers in the ranks of the unemployed.⁶ On the other hand, there is the possibility that the new machinery and the improved methods of production may be introduced more rapidly during the periods of revival and prosperity, thus giving the workers a chance to enforce their demands more successfully. The advantageous position of labor in maintaining shorter hours can be explained by the fact that, while the demand for lower wages comes at a time when labor is the weakest, the demand for increased hours comes at times of prosperity, when labor is strongest to resist.⁷

Following the periods of depression when the industry works undertime, some of the employers, seeing that the output did not decrease when they worked shorter hours, never go back to the original schedule.⁸ Also it is probable that during the depression periods the full-time hours schedule in operation previous to the depression were reported to the Bureau of Labor Statistics agents instead of the undertime working schedule, the idea that he is working undertime still being present in the employer's mind. During the periods of revival and prosperity they will report those shorter hours as fulltime. Therefore, although the actual decrease was made during the periods of the depression, the fall in hours will be reported during revival and prosperity periods. When the

⁵ For further discussion see Henry Raymond Mussey, "Eight-Hour Theory in the American Federation of Labor," in the volume of Economic Essays Contributed in Honor of J. B. Clark (edited by J. H. Hollander).

⁶ W. O. Weyforth, "The Organizability of Labor," in Johns Hopkins University Studies in Historical and Political Science, 1917, xxv, 247-248.

⁷ United States Industrial Commission, Final Report, XIX, 773.

⁸ U. S. Women's Bureau Bulletin No. 65, p. 75.

hours of labor increase, the cause may be that the trade-unions forced hours much lower than the actual state of industry would allow. If this happens, the employers will attempt to increase the hours of labor, and occasionally will be successful.

In a number of cases, especially when the bargaining power of the group is weak, as it is when composed of women and children, the states, using their police power, often adopt restrictive legislation with regard to hours of work.⁹ A legislative standard is not usually adopted before it has been proved practicable by some employer.¹⁰ Thus, it seems that the main rôle of enactment of legislative standards is to bring into line the lagging long-hour industries. When the hours-law in a State requires fairly short hours for women, such legislation usually is the main cause of reduction of hours.¹¹ We often will find that the hours of men are reduced as well, as a result of legislation restricting working hours for women and children.¹² At times, a threat of public investigation of the conditions within the industry may lead to a reduction in hours.¹³ Competition for labor may cause a less progressive firm to reduce its hours.¹⁴ An unjustifiably hostile attitude on the part of the employer, on the other hand, may at times slow down the process of reduction of hours.¹⁵

⁹ See Miriam E. Laughran, *The Historical Development of Child-Labor Legislation in the United States*, and *United States Women's Bureau*, Bulletin No. 66, *History of Labor Legislation for Women in Three States and Chronological Development of Labor Legislation for Women in the United States*, for chronological exposition.

¹⁰ U. S. Women's Bureau Bulletin No. 65, p. 64.

¹¹ *Ibid.*, p. 72.

¹² *Ibid.*, p. 73.

¹³ The case of the steel industry where under the threat of Congressional investigation the hours of work were reduced.

¹⁴ U. S. Women's Bureau Bulletin No. 65, p. 63.

¹⁵ See for example, "Overwhelming Business and Patriotic Reasons against the Eight Hour Bill" published by National Association of Manufacturers of the U. S. A. in 1902, for an expression of a hostile attitude toward the reduction of hours.

SUMMARY

Within the bounds set by the samples used in the present inquiry, the following results were obtained:

(1) The hours of labor seem to have no definite relationship to the size of the plant, as measured by the number of workers employed therein.

(2) The hourly rates of pay seem to vary inversely to the length of the working day.

(3) It is probable that the proportion of industries in which men and women work the same median number of hours gradually increases as we pass from long-hour industrial groups to shorter-hour ones.

(4) The hours of work of men tend to exceed or equal those of women and children in the same industry.

(5) Seemingly, there exists a rough correspondence between the duration of the business cycle and the period from one peak fall in the rate of change in hours of labor to another.

(6) The downward trend of working hours (for the eleven industries combined) reversed itself only four times during the period from 1890 to 1928.

(7) The range of fluctuations in the rates of yearly changes in working hours varies widely from industry to industry.

(8) The decrease in the working hours seems to approach a lower limit, though the possibility exists that it probably shifts periodically with the advance of machine civilization.

It was also noted:

(1) In no case in North Carolina has the median daily remuneration in the plants working longer hours exceeded that of shorter-hour plants.

(2) In Baltimore there seemed to be a tendency for establishments working either shortest or longest hours to employ mostly men.

APPENDIX A

INSTRUCTIONS TO INSPECTORS

ISSUED BY THE COMMISSIONER OF LABOR AND STATISTICS OF MARYLAND

THE CARD

The attached inspection card has been arranged to cover every type of inspection. A card is to be filled out for every establishment visited, without exception. This card only is to be filled out, with the following exceptions: (1) in the event that a factory or workshop is new and has never had a license, or that it has moved, or that alterations have been made, an application for a license must be made on either of the attached cards, marked 1 and 2, as the case may be, the card to be executed as formerly; (2) in the event of a violation of the law, the attached violation cards, marked 3 and 4, must also be filled out, as the case requires.

THE ITEMS

Each individual item of the new inspection card has been chosen either because it covers a phase of the labor laws coming within the jurisdiction of the Commissioner of Labor and Statistics or because its answer will bring in information which is of utmost importance. It is absolutely necessary, therefore, that each item be answered.

With the exception of the names, addresses, and classification, the form of each item can be answered simply by one of the following: "yes," "no," a simple number, or a check mark.

SPECIFIC INSTRUCTIONS

In Sections marked I: after the word "industry," insert the name of the general class, such as: Rubber, Tobacco, Textiles, Iron and Steel. After the word "classification," indicate to which of the following the industry belongs: manufacturing, wholesale, retail, wholesale and retail, mechanical, public utility. By a check mark, indicate whether the inspection is the first one of the year or a re-inspection. **OBTAIN THE NAME AND ADDRESS ACCURATELY, AND PRINT THEM ON THE CARD.** It is from these cards that the industrial directory will be maintained, and accuracy is important.

Section II is to be executed only if the industry is of a manufacturing nature. It is to be filled out in general for every type of manufacturing industry, although questions in regard to the license and workers allowed should be answered only for those manufacturing establishments to which they apply. If work is given out, be sure to attach a list of the names and addresses of those to whom it is given.

DEFINITIONS

Manufacturers—those engaged in the manufacturing business independently.

Contractors—those engaged in the manufacturing business under contract for other establishments.

Custom Tailors—those engaged in made-to-order clothing industry.

Cutting—those engaged in the clothing industry, whose actual work consists of some stage of cutting only.

In Section marked V: If the activities of the industry include personnel instruction, that is, instruction of the employees, indicate also whether the instruction is of an industrial nature, in connection with their work; or of a general nature, that is, not industrial.

In Section marked VI: Compulsory compensation insurance must be carried in one of the three following ways: (1) by insuring and keeping insured the payments of such compensation in the State Accident Fund; (2) by insuring and keeping insured the payments of such compensation with any stock corporation or mutual association authorized to transact the business of the Workmen's Compensation Insurance in this State; (3) by the company's furnishing satisfactory proof to the Commission of its financial ability to pay such compensation itself. Indicate which method the company has chosen.

If the company reports an insurance plan, other than compulsory compensation insurance, bring in a printed copy of the terms, if available. An old age pension depends on age, as the name indicates, whereas an industrial pension, as used in this connection, is based on years of service.

In Section VII: under "occupation" include in "executives" those who hold positions of a managerial nature: managers, proprietors, department heads, etc. The terms "office" and "sales" are self-explanatory. Include in "personal service" the "non-producers," so to speak, as follows: messengers, telephone operators, barbers, beauty parlor operators, laundry workers, cash girls and boys, bundle wrappers, elevator operators. "Workroom" is self-explanatory. "Domestic service" is to include the following: janitors, dish washers, maids, etc. "Home-worker" is self-explanatory.

The value of any statistical study or report depends very largely on the accuracy and completeness with which the material is secured. Please make every effort to obtain correct and complete facts. Remember that we are all working toward making our Department a vital factor in the life of the State and community in which we live. Let us pull together!

There will be a conference of inspectors every Friday afternoon at three o'clock, when opportunity will be given for discussions of problems which will arise from time to time.

Inspection Card Used by the Office of the Commissioner of Labor and Statistics of Maryland in 1928.

Industry.....	Classification.....	Inspection (Original) (Re-Inspection).....												
Name.....	St..... Co.....													
(Give last name first)														
If address has been changed during year, give old address.....														
Name of Proprietor.....	(Present address).....													
Name of President, if incorporated.....	Address.....													
If workshop, indicate which of following types: Mig..... Custom Tailor..... Cutting..... Cleaning, pressing, dyeing..... Altering.....														
Homeworker.....														
Articles manufactured.....														
Any work given out?..... (If so, attach list) License posted?..... Date issued?..... Workers within number allowed?.....														
For whom manufactured?.....														
<table border="0"> <tr> <td>WOMEN—Daily hours correct?..... Weekly hours correct?.....</td> <td>MINORS (14-16)—Are permits on file?..... Any working without permits?..... Any under 14?..... Any children working at forbidden occupations?..... Any working before 7 A. M. or after 7 P. M.?..... Is schedule posted correctly?..... Hours correct?..... Does employer require over-16 statements or adequate proof of age for children between 16 and 18?.....</td> </tr> <tr> <td>Is schedule posted correctly?..... Meal period (minutes)?.....</td> <td></td> </tr> <tr> <td>Day of rest each week?..... Do any work after 10 P. M. or before 6 A. M.?..... If so, are their hours correct?.....</td> <td></td> </tr> </table>			WOMEN—Daily hours correct?..... Weekly hours correct?.....	MINORS (14-16)—Are permits on file?..... Any working without permits?..... Any under 14?..... Any children working at forbidden occupations?..... Any working before 7 A. M. or after 7 P. M.?..... Is schedule posted correctly?..... Hours correct?..... Does employer require over-16 statements or adequate proof of age for children between 16 and 18?.....	Is schedule posted correctly?..... Meal period (minutes)?.....		Day of rest each week?..... Do any work after 10 P. M. or before 6 A. M.?..... If so, are their hours correct?.....							
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Day of rest each week?..... Do any work after 10 P. M. or before 6 A. M.?..... If so, are their hours correct?.....														
<table border="0"> <tr> <td>SANITATION—Toilets: No..... Separate for sexes?..... Separate for color?..... In proper working order?..... Properly ventilated?..... Clean?..... Wash Rooms: Common towels?..... Individual?..... Common soap?..... Individual?..... Drinking Water: In clean container?..... Common cups?..... Individual?.....</td> <td>SAFETY—Total No. of floors?..... No. in use?..... No. inside stairs?..... No. fire escapes?..... No. elevators?..... Separate for passengers and freight?..... Fire drills?..... How often?..... Compensation insurance?..... State Accident Fund?..... Insurance company?..... Self insurance?.....</td> </tr> <tr> <td>LIGHTING—Day light?..... Artificial?.....</td> <td>WELFARE WORK—First aid provision?..... Hospital room?..... Doctor?..... Nurse?..... Proper and sufficient seats for women and girls?..... Rest room for women and girls?..... Insurance plan (other than compulsory compensation insurance)?..... Old age pension system?..... Industrial pension system?.....</td> </tr> <tr> <td>VENTILATION—Direct?..... Indirect?..... Adequate?.....</td> <td></td> </tr> <tr> <td>PERSONNEL WORK—Personnel director?..... If so, give name</td> <td></td> </tr> <tr> <td>Personnel instruction?..... Industrial?..... General?.....</td> <td></td> </tr> <tr> <td>During working hours?..... After working hours?.....</td> <td></td> </tr> </table>			SANITATION—Toilets: No..... Separate for sexes?..... Separate for color?..... In proper working order?..... Properly ventilated?..... Clean?..... Wash Rooms: Common towels?..... Individual?..... Common soap?..... Individual?..... Drinking Water: In clean container?..... Common cups?..... Individual?.....	SAFETY—Total No. of floors?..... No. in use?..... No. inside stairs?..... No. fire escapes?..... No. elevators?..... Separate for passengers and freight?..... Fire drills?..... How often?..... Compensation insurance?..... State Accident Fund?..... Insurance company?..... Self insurance?.....	LIGHTING—Day light?..... Artificial?.....	WELFARE WORK—First aid provision?..... Hospital room?..... Doctor?..... Nurse?..... Proper and sufficient seats for women and girls?..... Rest room for women and girls?..... Insurance plan (other than compulsory compensation insurance)?..... Old age pension system?..... Industrial pension system?.....	VENTILATION—Direct?..... Indirect?..... Adequate?.....		PERSONNEL WORK—Personnel director?..... If so, give name		Personnel instruction?..... Industrial?..... General?.....		During working hours?..... After working hours?.....	
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PERSONNEL WORK—Personnel director?..... If so, give name														
Personnel instruction?..... Industrial?..... General?.....														
During working hours?..... After working hours?.....														
Date.....	Inspector.....													
COMMISSIONER OF LABOR AND STATISTICS, MARYLAND		Inspection Form No. 1000												

APPENDIX B

GENERAL TABLES

The basic data upon which the first part of this study is founded are presented in the following tables XI-XIV. Table XI shows the data for the hours of labor in selected industries in the City of Baltimore, Maryland, for the year 1928 and in the State of North Carolina for the period 1925-1926, arranged by the size of the establishments. Table XII shows the data for the hours of labor in selected industries in North Carolina classified according to the lowest daily wage paid to men in the various establishments. Table XIII shows the hours of labor worked in the various industries in Baltimore for men, women and children. Table XIV shows the percentage of the total number of employees in the various industries of Baltimore represented by male adults.

It may be mentioned that those working an indefinite number of hours per day were not taken into consideration when the medians were computed. For this reason, persons working an indefinite number of hours per day were omitted from table XI and table XII, though table XIII gives their numbers in the respective industries.

The following abbreviations were used to indicate the median classes in table XI:

L8	Less than 8
M8L9	More than 8—Less than 9
9L10	9—Less than 10
Ov10	Over 10
B10	Below 10
10 —	10 and below
10 +	10 and above

Whenever less than three establishments represent a class in table XI, this class is consolidated with the one next to it having the smallest number of terms. To indicate that the median represents the central tendency of the two consolidated classes, in such cases it is put under a brace reuniting the two columns of figures. When the medians in table XIII are represented by classes, the figures for those classes are placed between parallel lines, but when the median falls between the two classes a single line is used between these classes to denote the location of the median.

In table XIV all employees within the respective industries are considered irrespective of the fact whether or not they work a definite number of hours per day.

TABLE XI.

Hours of Labor, in Selected Industries, Baltimore, Md. (1928), and North Carolina (1925-1926), Arranged by the Size of the Establishments.¹

(1) BALTIMORE, Md.

a. Beverages

Daily Hours of Work	Number of workers, arranged by the size of the establishments, as measured by the number of workers, employed therein.					
	5-9	10-14	15-24	25-49	50-99	100 & over
Less than 8.....	11	14	1	..	5	..
8	30	..	31	20	145	..
More than 8—Less than 9...	1	..	19	26	..	..
9—Less than 10.....	24	21	22	80	..	..
10	9	..	12	..	..	..
Over 10.....	..	..	..	..	..	..
No. of establishments.....	12	3	3	5	2	..
Median Class.....	8	9L10	M8L9	8		

b. Boxes, paper, not elsewhere classified

Less than 8.....	..	..	2	1	13	..
8	..	10	5	17	50	23
More than 8—Less than 9...	..	14	32	101	158	241
9—Less than 10.....	..	..	39	97	326	..
10	..	..	..	..	10	..
Over 10.....	..	..	..	..	..	..
No. of establishments.....	..	2	4	6	8	2
Median Class.....	..	M8L9	M8L9	M8L9		

c. Bread, and other Bakery Products

Less than 8.....	27	5	4	59	..	39
8	108	47	58	86	..	407
More than 8—Less than 9...	26	25	..	..	..	654
9—Less than 10.....	81	70	53	37	52	588
10	45	2	43	4	..	117
Over 10.....	8	7	11	2	..	89
No. of establishments.....	56	15	11	8	1	10
Median Class.....	M8L9	9L10	9L10	8	M8L9	

¹ For explanations of abbreviations, see p. 59, above.

TABLE XI (Continued). Hours of Labor, in Selected Industries, Baltimore, Md. (1928) and North Carolina (1925-1926), Arranged by the Size of the Establishments.

(1) BALTIMORE

d. Clothing (except work clothing) men's, youths' and boys', not elsewhere classified

Daily Hours of Work	Number of workers, arranged by the size of the establishments, as measured by the number of workers, employed therein.					
	5-9	10-14	15-24	25-49	50-99	100 & over
Less than 8.....	20	3	32	35	3	80
8	429	568	694	960	1318	3061
More than 8—Less than 9...	92	71	177	137	84	1094
9—Less than 10.....	51	55	121	3	113	1035
10	..	..	..	..	..	4
Over 10.....	..	..	..	..	..	..
No. of establishments.....	88	60	56	33	22	21
Median Class.....	8	8	8	8	8	8

e. Clothing, women's, not elsewhere classified

Less than 8.....	14	1	1	3	9	30
8	96	93	105	61	78	416
More than 8—Less than 9...	24	34	110	136	417	783
9—Less than 10.....	5	..	40	26	88	1
10	..	..	..	..	..	1
Over 10.....	..	..	..	..	..	..
No. of establishments.....	20	11	13	9	8	8
Median Class.....	8	8	M8L9	M8L9	M8L9	M8L9

f. Confectionery

Less than 8.....	7	17	..	60	5	32
8	50	10	32	95	104	170
More than 8—Less than 9...	12	24	30	8	182	194
9—Less than 10.....	15	15	21	40	141	378
10	10	8	13	..	104	..
Over 10.....	..	..	..	..	14	..
No. of establishments.....	16	6	5	7	7	5
Median Class.....	8	M8L9	M8L9	8	M8L9	M8L9

TABLE XI (Continued): Hours of Labor, in Selected Industries, Baltimore, Md. (1928) and North Carolina (1925-1926), Arranged by the Size of the Establishments.

(1) BALTIMORE

g. Furnishing goods, men's, not elsewhere classified

Daily Hours of Work	Number of workers, arranged by the size of the establishments, as measured by the number of workers, employed therein.					
	5-9	10-14	15-24	25-49	50-99	100 & over
Less than 8.....	..	..	..	..	..	235
8	..	12	45	178	11	654
More than 8—Less than 9...	..	..	10	3	61	1243
9—Less than 10.....	..	..	..	40	192	1040
10	..	..	..	..	..	1
Over 10.....	..	..	..	..	..	..
No. of establishments.....	..	1	3	6	4	10
Median Class.....	..	8		8	9L10	M8L9

h. Furniture, including Store and Office Fixtures

Less than 8.....	15	2	..	1	14	3
8	12	7	44	9	133	97
More than 8—Less than 9...	25	50	..	2	19	128
9—Less than 10.....	11	31	75	153	466	371
10	1	3	1	..	..	..
Over 10.....	..	..	..	..	..	..
No. of establishments.....	10	8	6	5	9	4
Median Class.....	M8L9	M8L9	9L10	9L10	9L10	9L10

i. Machinery, not including transportation equipment

Less than 8.....	1	3	2	103	67	41
8	14	60	39	162	123	2094
More than 8—Less than 9...	5	31	62	221	152	460
9—Less than 10.....	40	37	33	88	50	100
10	..	..	..	..	..	15
Over 10.....	..	..	..	16	..	..
No. of establishments.....	9	12	8	8	6	7
Median Class.....	9L10	M8L9	M8L9	M8L9	M8L9	8

TABLE XI (Continued). Hours of Labor, in Selected Industries, Baltimore, Md. (1928) and North Carolina (1925-1926), Arranged by the Size of the Establishments.

(1) BALTIMORE

j. Medicines and compounds

Daily Hours of Work	Number of workers, arranged by the size of the establishments, as measured by the number of workers, employed therein.					
	5-9	10-14	15-24	25-49	50-99	100 & over
Less than 8.....	5	4	..	2	8	3
8	36	9	39	80	117	128
More than 8—Less than 9...	4	..	..	..	46	231
9—Less than 10.....	18	..	..	..	140	639
10	..	..	..	..	..	..
Over 10.....	..	..	..	..	..	..
No. of establishments.....	9	1	2	3	4	3
Median Class.....	8	8		8	M8L9	9L10

k. Millwork

Less than 8.....	..	..	..	2	5	..
8	1	13	18	56	7	9
More than 8—Less than 9...	8	..	29	43	11	..
9—Less than 10.....	17	..	1	215	152	108
10	..	..	..	54	..	..
Over 10.....	..	..	..	..	..	..
No. of establishments.....	4	1	3	10	3	1
Median Class.....	9L10	8		9L10	9L10	

l. Printing and Publishing

Less than 8.....	21	33	13	29	20	114
8	142	90	268	262	131	1072
More than 8—Less than 9..	41	99	52	120	133	646
9—Less than 10.....	37	16	..	68	101	3
10	..	..	..	..	..	..
Over 10.....	..	..	..	..	..	..
No. of establishments.....	38	20	18	13	6	8
Median Class.....	8	8	8	8	M8L9	8

TABLE XI (Continued). Hours of Labor, in Selected Industries, Baltimore, Md. (1928) and North Carolina (1925-1926), Arranged by the Size of the Establishments.

(1) BALTIMORE

m. Sheet-iron works

Daily Hours of Work	Number of workers, arranged by the size of the establishments, as measured by the number of workers, employed therein.					
	5-9	10-14	15-24	25-49	50-99	100 & over
Less than 8.....	..	3	..	3	..	..
8	20	57	110	32	30	2185
More than 8—Less than 9...	6	14	..	83	29	..
9—Less than 10.....	15	4	..	..	..	..
10	..	..	..	..	..	550
Over 10.....	..	..	..	..	..	..
No. of establishments.....	7	7	6	4	1	4
Median Class.....	M8L9	8	8	M8L9		4

(2) NORTH CAROLINA

a. Beverages

Below 10.....	36	10	50	30	..	..
10	161	81	72	28	..	..
No. of establishments.....	28	8	7	2	..	..
Median Class.....	10	10	10			

b. Bread and other Bakery products

Below 10.....	48	28	47	81	68	..
10 and over.....	22	36	62	105	..	..
No. of establishments.....	9	5	5	5	1	..
Median Class.....	B10	10+	10+	B10		

c. Brick

Below 10.....	..	12	80	26	..	..
10 and over.....	18	24	91	183	505	300
No. of establishments.....	2	3	9	7	8	1
Median Class.....	10+	10+	10+	10+	10+	

TABLE XI (Continued). Hours of Labor, in Selected Industries, Baltimore, Md. (1928) and North Carolina (1925-1926), Arranged by the Size of the Establishments.

(2) NORTH CAROLINA

d. Cotton Goods

Daily Hours of Work	Number of workers, arranged by the size of the establishments, as measured by the number of workers, employed therein.					
	5-9	10-14	15-24	25-49	50-99	100 & over
10 and below.....	45	21	..	217	2586	49640
Over 10.....	..	10	..	548	1804	28327
No. of establishments.....	8	3	..	17	65	274
Median Class.....	10—	10—		Ov10	10—	10—

e. Fertilizers

Below 10.....	..	35	15	65	..	..
10 and over.....	5	48	33	366	107	682
No. of establishments.....	1	7	3	12	2	5
Median Class.....	10+		10+	10+	10+	

f. Flour, Feeds and other grain mill products

10 and below.....	69	26	54	108	53	..
Over 10.....	53	13	33	65	50	..
No. of establishments.....	19	3	5	5	2	..
Median Class.....	10—	10—	10—	10—		

g. Furniture, including Store and Office fixtures

Below 10.....	..	..	..	..	225	458
10	49	46	107	671	1339	8911
Over 10.....	..	..	20	..	..	289
No. of establishments.....	7	2	9	19	22	47
Median Class.....	10		10	10	10	10

TABLE XI (Continued). Hours of Labor, in Selected Industries, Baltimore, Md. (1928) and North Carolina (1925-1926), Arranged by the Size of the Establishments.

(2) NORTH CAROLINA

h. Ice Cream

Daily Hours of Work	Number of workers, arranged by the size of the establishments, as measured by the number of workers, employed therein.					
	5-9	10-14	15-24	25-49	50-99	100 & over
9	6	..	..	36	61	..
10 and over.....	49	35	35	122	50	..
No. of establishments.....	8	3	2	5	2	..
Median Class.....	10+	10+		10+		

i. Ice, manufactured

10 and below.....	20	63	115	33	100	..
Over 10.....	36	12	..	26	225	..
No. of establishments.....	9	6	7	2	6	..
Median Class.....	Ov10	10—	10—	Ov10		

j. Lumber and Timber products, not elsewhere classified

Below 10.....	23	12	57	70	..	100
10	282	376	673	499	1178	4983
Over 10.....	..	..	33	91	..	630
No. of establishments.....	43	39	41	21	17	30
Median Class.....	10	10	10	10	10	10

k. Knit Goods

Below 10.....	..	12	15	71	192	136
10	..	10	142	752	1493	8960
Over 10.....	..	..	..	..	50	365
No. of establishments.....	..	2	8	22	25	45
Median Class.....		10		10	10	10

TABLE XI (Continued). Hours of Labor, in Selected Industries, Baltimore, Md. (1928) and North Carolina (1925-1926), Arranged by the Size of the Establishments.

(2) NORTH CAROLINA

1. Machinery, not including transportation equipment

Daily Hours of Work	Number of workers, arranged by the size of the establishments, as measured by the number of workers, employed therein.					
	5-9	10-14	15-24	25-49	50-99	100 & over
Below 10.....	24	28	15	110	264	..
10	26	53	96	208	115	..
No. of establishments.....	7	7	7	10	6	..
Median Class.....	10	10	10	10	B10	..

m. Millwork

Below 10.....	..	..	39	35	131	..
10	24	34	139	210	202	..
No. of establishments.....	4	3	9	8	5	..
Median Class.....	10	10	10	10	10	..

n. Printing and Publishing

8	332	95	307	381	624	107
Over 8.....	172	67	96	62	72	..
No. of establishments.....	83	15	22	13	10	1
Median Class.....	8	8	8	8	8	

TABLE XII.

Hours of Labor, Arranged According to the Lowest Daily Wage Paid in Various Establishments, in Selected Industries, North Carolina, 1925-1926.

a. Beverages

Daily Hours of Work	Number of establishments, arranged according to the daily wage.					Median class
	Less than 1.50	1.50-1.99	2.00-2.49	2.50-2.99	3.00 & over	
Below 10.....	1	..	5	2	2	2.00-2.49
10	6	12	5	8	1	1.50-1.99

b. Bread and other bakery products

Below 10.....	2	1	2	8	..	2.50-2.99
10 and over.....	..	1	8	2	..	2.00-2.49

c. Brick

Below 10.....	1	..	3	1	1	2.00-2.49
10 and over.....	1	2	17	4	..	2.00-2.49

d. Cotton Goods

10 or below.....	3	25	51	20	4	2.00-2.49
Over 10.....	3	20	38	8	4	2.00-2.49

e. Fertilizers

Below 10.....	..	1	3	2	..	2.00-2.49
10 and over.....	..	2	13	7	2	2.00-2.49

f. Flour, Feeds, and other grain mill products

10 and below.....	..	1	3	11	2	2.50-2.99
Over 10.....	..	1	6	7	1	2.50-2.99

g. Furniture, including store and office fixtures

Below 10.....	..	..	..	1	2	a
10	10	17	49	17	5	2.00-2.99
Over 10.....	1	..	..	..	1	a

* The median was not calculated in this case, due to the extremely small number of establishments in this group.

TABLE XII (Continued). Hours of Labor Arranged According to the Lowest Daily Wage Paid in Various Establishments, in Selected Industries, North Carolina, 1925-1926.

h. Ice Cream

Daily Hours of Work	Number of establishments, arranged according to the daily wage.					Median class
	Less than 1.50	1.50-1.99	2.00-2.49	2.50-2.99	3.00 & over	
9	..	..	1	1	1	2.50-2.99
10 and over.....	..	2	4	10	1	2.50-2.99

i. Ice, manufactured

10 and below.....	2	4	6	4	2	2.00-2.49
Over 10.....	1	1	8	..	2	2.00-2.49

j. Knit goods

Below 10.....	..	2	1	1	2	2.50
10	4	18	22	17	10	2.00-2.49
Over 10.....	2	1	..	..	1	1.50

k. Lumber and timber products

Below 10.....	1	4	4	2	..	2.00-2.49
10.	24	50	73	18	..	2.00-2.49
Over 10.....	2	2	4	..	..	2.00

l. Machinery, not including transportation equipment

Below 10.....	..	1	6	..	5	2.00-2.49
10	..	3	9	..	10	2.00-2.49

m. Millwork

Below 10.....	..	..	3	..	2	2.00-2.49
10	..	2	14	7	..	2.00-2.49

n. Printing and publishing

8	14	17	18	11	31	2.00-2.49
Over 8.....	12	2	10	7	9	2.00-2.49

TABLE XIII.

Hours of Labor, for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.²

1. Awnings, tents, sails, and canvas covers

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	..	8	..	8
8	34	40	3	77
More than 8—Less than 9....	124	36	..	160
9—Less than 10.....	27	6	..	33
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	2	..	..	2
Total	187	90	3	280

2. Beverages

Less than 8.....	23	6	2	31
8	215	11	..	226
More than 8—Less than 9....	46	..	..	46
9—Less than 10.....	147	..	..	147
10	20	1	..	21
Over 10.....	..	..	..	..
Indefinite	12	2	..	14
Total	463	20	2	485

3. Bookbinding and blank-book making

Less than 8.....	..	1	..	1
8	45	33	13	91
More than 8—Less than 9....	113	58	1	172
9—Less than 10.....	..	..	..	..
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	..	..	..	..
Total	158	92	14	264

² For explanation of abbreviations, see p. 59, above.

TABLE XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

4. Boots and shoes, other than rubber

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	..	2	5	7
8	70	126	41	237
More than 8—Less than 9....	259	79	..	338
9—Less than 10.....	334	288	..	622
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	17	..	..	17
Total	680	495	46	1221

5. Boxes, paper, not elsewhere classified

Less than 8.....	5	10	1	16
8	14	15	76	105
More than 8—Less than 9....	178	368	..	546
9—Less than 10.....	330	131	1	462
10	10	..	..	10
Over 10.....	..	..	..	..
Indefinite	2	..	..	2
Total	539	524	78	1141

6. Boxes, wooden, except cigar boxes

Less than 8.....	1	1	..	2
8	23	4	..	27
More than 8—Less than 9....	2	1	..	3
9—Less than 10.....	25	..	..	25
10	167	2	..	169
Over 10.....	192	..	..	192
Indefinite	3	..	..	3
Total	413	8	..	421

TABLE XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

7. Bread and other bakery products

Daily Hours of Labor	Men	Number of Employees		All
		Women	Children	
Less than 8.....	61	70	3	134
8	533	157	16	706
More than 8—Less than 9....	469	236	..	705
9—Less than 10.....	742	139	..	881
10	205	6	..	211
Over 10.....	115	2	..	117
Indefinite	338	24	..	362
Total	2463	634	19	3116

8. Brushes, other than rubber

Less than 8.....	33	1	3	37
8	8	3	1	12
More than 8—Less than 9....	62	13	..	75
9—Less than 10.....	156	131	..	287
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	2	..	..	2
Total	261	148	4	413

9. Chemicals, not elsewhere classified

Less than 8.....	4	14	..	18
8	317	6	..	323
More than 8—Less than 9....	15	..	..	15
9—Less than 10.....	403	38	..	441
10	888	..	..	888
Over 10.....	..	..	..	..
Indefinite	5	..	..	5
Total	1632	58	..	1690

TABLE XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

10. Cigars and cigarettes

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	..	33	..	33
8	76	42	..	118
More than 8—Less than 9....	38	73	..	111
9—Less than 10.....	49	349	1	399
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	9	1	..	10
Total	172	458	1	671

11. Clothing (Except work clothing) men's, youths' and boys', not elsewhere classified

Less than 8.....	72	68	33	173
8	3118	3600	312	7030
More than 8—Less than 9....	645	1001	9	1655
9—Less than 10.....	766	612	..	1378
10	4	..	..	4
Over 10.....	..	..	..	..
Indefinite	53	81	2	136
Total	4658	5362	356	10376

12. Clothing, women's, not elsewhere classified

Less than 8.....	31	20	7	58
8	298	516	35	849
More than 8—Less than 9....	389	1225	..	1614
9—Less than 10.....	47	113	..	160
10	1	..	..	1
Over 10.....	..	..	..	..
Indefinite	14	7	..	21
Total	780	1881	42	3103

TABLE XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

13. Clothing, work (except shirts), men's

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	1	12	..	13
8	22	49	16	87
More than 8—Less than 9....	77	508	..	585
9—Less than 10.....	2	..	..	2
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	1	..	..	1
Total	103	569	16	688

14. Concrete products

Less than 8.....	..	1	..	1
8	8	1	..	9
More than 8—Less than 9....	..	..	..	..
9—Less than 10.....	94	1	..	95
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	2	..	..	2
Total	104	3	..	107

15. Confectionery

Less than 8.....	65	59	1	125
8	139	245	67	451
More than 8—Less than 9....	165	285	..	450
9—Less than 10.....	302	308	..	610
10	78	57	..	135
Over 10.....	14	..	..	14
Indefinite	33	1	..	34
Total	796	955	68	1819

TABLE XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

16. Cooperage

Daily Hours of Labor	Men	Number of Employees		All
		Women	Children	
Less than 8.....	1	3	..	4
8	4	1	2	7
More than 8—Less than 9....	17	1	..	18
9—Less than 10.....	185	..	..	185
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	1	..	..	1
Total	208	5	2	215

17. Cotton goods

Less than 8.....	..	..	..	..
8	21	20	1	42
More than 8—Less than 9....	5	5	..	10
9—Less than 10.....	292	377	..	669
10	300	248	..	548
Over 10.....	..	..	..	..
Indefinite	3	..	..	3
Total	621	650	1	1272

18. Engraving

Less than 8.....	5	5	1	11
8	99	10	6	115
More than 8—Less than 9....	57	21	..	78
9—Less than 10.....	32	6	..	38
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	..	..	..	..
Total	193	42	7	242

TABLE XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

19. Fertilizers

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	..	12	..	12
8	62	2	..	64
More than 8—Less than 9....	1	..	..	1
9—Less than 10.....	788	..	..	788
10	1046	..	..	1046
Over 10.....	50	..	..	50
Indefinite	..	..	..	..
Total	1947	14	..	1961

20. Food preparations, not elsewhere classified

Less than 8.....	4	7	1	12
8	89	82	11	182
More than 8—Less than 9....	200	39	..	239
9—Less than 10.....	228	174	..	402
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	36	1	..	37
Total	557	303	12	872

21. Fur goods

Less than 8.....	..	..	..	..
8	50	58	3	111
More than 8—Less than 9....	3	2	..	5
9—Less than 10.....	..	..	..	..
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	..	..	..	..
Total	53	60	3	116

TABLE XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

22. Furnishing goods, men's, not elsewhere classified

Daily Hours of Labor	Men	Number of Employees		All
		Women	Children	
Less than 8.....	14	214	7	235
8	145	554	201	900
More than 8—Less than 9....	187	1129	1	1317
9—Less than 10.....	164	1108	..	1272
10	1	..	..	1
Over 10.....	..	..	..	..
Indefinite	31	3	..	34
Total	542	3008	209	3759

23. Furniture, including store and office fixtures

Less than 8.....	14	20	1	35
8	212	61	39	312
More than 8—Less than 9....	190	34	..	224
9—Less than 10.....	1070	32	..	2002
10	5	..	..	5
Over 10.....	..	..	..	..
Indefinite	18	..	..	18
Total	1509	147	40	1696

24. Glass

Less than 8.....	7	15	..	22
8	1041	215	60	1316
More than 8—Less than 9....	16	10	..	26
9—Less than 10.....	..	..	..	..
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	..	..	..	..
Total	1064	240	60	1364

TABLE XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

25. Hats and caps, except felt and straw, men's

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	..	..	..	..
8	29	4	..	33
More than 8—Less than 9....	4	5	..	9
9—Less than 10.....	..	..	..	..
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	..	..	..	..
Total	33	9	..	42

26. House-furnishing goods, not elsewhere classified

Less than 8.....	..	2	..	2
8	..	8	14	22
More than 8—Less than 9....	25	107	..	132
9—Less than 10.....	38	5	..	43
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	7	..	..	7
Total	70	122	14	206

27. Ice cream

Less than 8.....	5	7	..	12
8	75	13	..	88
More than 8—Less than 9....	4	4	..	8
9—Less than 10.....	..	..	..	..
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	34	..	..	34
Total	118	24	..	142

TABLE XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

28. Ice, manufactured

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	1	2	..	3
8	94	3	..	97
More than 8—Less than 9....	5	..	..	5
9—Less than 10.....	89	..	..	89
10	39	..	..	39
Over 10.....	3	..	..	3
Indefinite	8	..	..	8
Total	239	5	..	244

29. Jewelry

Less than 8.....	..	10	..	10
8	158	11	6	175
More than 8—Less than 9....	102	7	..	109
9—Less than 10.....	..	..	..	..
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	..	..	..	..
Total	260	28	6	294

30. Lithographing

Less than 8.....	19	25	1	45
8	281	29	7	317
More than 8—Less than 9....	187	28	1	216
9—Less than 10.....	..	..	..	..
10	..	..	..	..
Over 10.....	100	..	..	100
Indefinite	..	..	..	..
Total	587	82	9	678

TABLE XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

31. Machinery, not including transportation equipment

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	156	61	..	217
8	2332	145	17	2494
More than 8—Less than 9....	789	142	..	931
9—Less than 10.....	347	1	..	348
10	15	..	..	15
Over 10.....	16	..	..	16
Indefinite	35	7	..	42
Total	3690	356	17	4063

32. Marble, granite, slate, and other stone products

Less than 8.....	..	..	..	..
8	79	4	..	83
More than 8—Less than 9....	27	5	..	32
9—Less than 10.....	300	..	..	300
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	3	..	..	3
Total	409	9	..	418

33. Mattresses and bed springs, not elsewhere classified

Less than 8.....	15	11	..	26
8	14	21	2	37
More than 8—Less than 9....	103	15	..	118
9—Less than 10.....	120	22	..	142
10	14	..	..	14
Over 10.....	..	..	..	..
Indefinite	2	..	..	2
Total	268	69	2	339

TABLE XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

34. Meat packing, wholesale

Daily Hours of Labor	Men	Number of Employees		All
		Women	Children	
Less than 8.....	..	3	..	3
8	58	..	12	70
More than 8—Less than 9....	51	68	..	119
9—Less than 10.....	469	18	..	487
10	1156	163	..	1319
Over 10.....	..	..	..	..
Indefinite	59	..	..	59
Total	1793	252	12	2057

35. Medicines and compounds

Less than 8.....	6	16	..	22
8	182	219	8	409
More than 8—Less than 9....	170	111	..	281
9—Less than 10.....	375	422	..	797
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	..	..	..	..
Total	733	768	8	1509

36. Millwork

Less than 8.....	..	7	..	7
8	51	18	4	73
More than 8—Less than 9....	89	4	..	93
9—Less than 10.....	520	1	..	521
10	55	..	..	55
Over 10.....	..	..	..	..
Indefinite	26	..	..	26
Total	741	30	4	775

TABLE XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

37. Mirror and picture frames

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	..	..	..	..
8	19	9	15	43
More than 8—Less than 9....	13	..	..	13
9—Less than 10.....	135	46	..	181
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	..	..	..	..
Total	167	55	15	237

38. Motor-vehicle bodies and motor-vehicle parts

Less than 8.....	47	28	..	75
8	21	1	1	23
More than 8—Less than 9....	22	..	..	22
9—Less than 10.....	19	..	..	19
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	2	..	..	2
Total	111	29	1	141

39. Optical goods

Less than 8.....	7	11	..	18
8	83	15	17	115
More than 8—Less than 9....	8	..	..	8
9—Less than 10.....	..	..	..	..
10	4	..	..	4
Over 10.....	..	..	..	..
Indefinite	..	..	..	..
Total	102	26	17	145

Table XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

40. Paints and varnishes

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	1	4	..	5
8	95	45	..	140
More than 8—Less than 9....	78	7	..	85
9—Less than 10.....	..	1	..	1
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	6	..	..	6
Total	180	57	..	237

41. Photo-engraving, not done in printing establishments

Less than 8.....	..	..	..	..
8	61	5	4	70
More than 8—Less than 9....	26	..	..	26
9—Less than 10.....	..	..	..	..
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	..	..	..	..
Total	87	5	4	96

42. Printing and Publishing

Less than 8.....	146	84	..	230
8	1505	387	53	1945
More than 8—Less than 9....	926	159	6	1091
9—Less than 10.....	204	21	..	225
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	41	1	..	42
Total	2842	652	59	3553

Table XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

43. Sheet-metal works

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	2	4	..	6
8	2391	38	5	2434
More than 8—Less than 9....	126	6	..	132
9—Less than 10.....	19	..	..	19
10	550	..	..	550
Over 10.....	..	..	..	..
Indefinite	15	..	..	15
Total	3103	48	5	3156

44. Ship and boat building, steel and wooden, including repair work

Less than 8.....	..	..	..	..
8	2419	14	..	2433
More than 8—Less than 9....	1	..	..	1
9—Less than 10.....	86	..	..	86
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	..	..	..	..
Total	2506	14	..	2520

45. Shirts

Less than 8.....	10	61	1	72
8	200	628	36	864
More than 8—Less than 9....	109	586	..	695
9—Less than 10.....	19	4	..	23
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	16	2	..	18
Total	354	1281	37	1672

Table XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

46. Signs and advertising novelties

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	..	1	..	1
8	82	7	2	91
More than 8—Less than 9....	41	..	..	41
9—Less than 10.....	15	..	..	15
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	..	..	..	..
Total	138	8	2	148

47. Stamped ware, enameled ware, and metal stamping, enameling, japaning, and lacquering

Less than 8.....	129	45	1	175
8	96	40	6	142
More than 8—Less than 9....	305	103	..	408
9—Less than 10.....	1976	541	..	2517
10	19	..	..	..
Over 10.....	..	..	..	..
Indefinite	..	..	..	..
Total	2525	729	7	3261

48. Structural and ornamental iron and steel work, not made in rolling mills

Less than 8.....	..	4	..	4
8	612	49	1	662
More than 8—Less than 9....	278	1	..	279
9—Less than 10.....	227	..	..	227
10	..	..	..	..
Over 10.....	2	..	..	2
Indefinite	82	1	..	83
Total	1201	55	1	1257

Table XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

49. Tin cans and other tinware, not elsewhere classified

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	68	39	..	107
8	59	25	112	196
More than 8—Less than 9....	94	90	..	184
9—Less than 10.....	1296	495	..	1791
10	943	449	..	1392
Over 10.....	10	..	..	..
Indefinite	10	..	..	10
Total	2470	1098	112	3680

50. Toys (not including children's wheel goods or sleds), games and playground equipment

Less than 8.....	..	..	..	..
8	6	10	3	19
More than 8—Less than 9....	13	24	..	37
9—Less than 10.....	44	19	..	63
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	5	1	..	6
Total	68	54	3	125

51. Umbrellas, parasols, and canes

Less than 8.....	..	..	..	..
8	9	21	39	69
More than 8—Less than 9....	44	157	..	201
9—Less than 10.....	91	169	..	260
10	1	..	..	1
Over 10.....	..	..	..	..
Indefinite	12	..	..	12
Total	157	347	39	543

Table XIII (Continued). Hours of Labor for Men, Women and Children, in Selected Industries, Baltimore, Md., 1928.

52. Wirework, not elsewhere classified

Daily Hours of Labor	Number of Employees			All
	Men	Women	Children	
Less than 8.....	10	30	..	40
8	19	12	..	31
More than 8—Less than 9....	73	80	..	153
9—Less than 10.....	27	..	..	27
10	..	..	..	..
Over 10.....	..	..	..	..
Indefinite	2	..	..	2
Total	131	122	..	253

53. Wood turned and shaped and other wooden goods, not elsewhere classified

Less than 8.....	..	2	..	2
8	36	1	5	42
More than 8—Less than 9....	7	—	..	7
9—Less than 10.....	47	3	..	50
10	22	..	..	22
Over 10.....	..	..	..	..
Indefinite	2	..	..	2
Total	114	6	5	125

TABLE XIV.

Percentage of the Total Number of Employees in the Various Industries of Baltimore Represented by Male Adults.

Industry	Per Cent of Men
Awnings, tents, sails, and canvas covers.....	67
Beverages	95
Bookbinding and blank-book making.....	60
Boots and shoes, other than rubber.....	56
Boxes, paper, not elsewhere classified.....	47
Boxes, wooden, except cigar boxes.....	98
Bread and other bakery products.....	79
Brushes other than rubber.....	63
Chemicals, not elsewhere classified.....	96
Cigars and cigarettes.....	26
Clothing (except work clothing), men's, youths' and boys', not elsewhere classified.....	44
Clothing, women's, not elsewhere classified.....	25
Clothing, work (except shirts), men's.....	15
Concrete products.....	97
Confectionery	44
Cooperage	97
Cotton goods.....	49
Engraving	80
Fertilizers	99
Food preparations, not elsewhere classified.....	64
Fur goods.....	46
Furnishing goods, men's, not elsewhere classified.....	14
Furniture, including store and office fixtures.....	89
Glass	78
Hats and caps, except felt and straw, men's.....	79
House-furnishing goods, not elsewhere classified.....	34
Ice cream.....	83
Ice, manufactured.....	98
Jewelry	88
Lithographing	87
Machinery, not including transportation equipment.....	90
Marble, granite, slate, and other stone products.....	98
Mattresses and bed springs, not elsewhere classified.....	79
Meat packing, wholesale.....	87
Medicines and compounds.....	48
Millwork	96
Mirror and picture frames.....	70
Motor-vehicle bodies and motor-vehicle parts.....	79
Optical goods.....	70
Paints and varnishes.....	76
Photo-engraving, not done in printing establishments.....	91
Printing and Publishing.....	51
Sheet metal works.....	98

TABLE XIV (Continued). Percentage of the Total Number of Employees in the Various Industries of Baltimore Represented by Male Adults.

Industry	Per Cent of Men
Ship and boat building, steel and wooden, including repair work	99
Shirts	21
Signs and advertising novelties.....	93
Stamped ware, enameled ware and metal stamping, enameling, japaning, and lacquering.....	77
Structural and ornamental iron and steel work, not made in rolling mills.....	96
Tin cans and other tinware, not elsewhere classified.....	64
Toys (not including children's wheel goods or sleds), games, and playground equipment.....	54
Umbrellas, parasols, and canes.....	29
Wirework, not elsewhere classified.....	52
Wood turned and shaped and other wooden goods, not else- where classified.....	86

APPENDIX C

BULLETINS OF THE BUREAU OF LABOR STATISTICS USED IN PREPARATION OF THE INDEX NUMBERS OF HOURS OF LABOR.

Industry	Source	Period	Nature of Data
Bakeries	Bul. 77	1890-1907	Pay-roll
	Bul. 482	1907-1928	Union Scales
Boot and Shoe ^a	Bul. 134	1890-1912	Pay-roll
	Bul. 498	1912-1928	" "
Building Trades	Bul. 77	1890-1907	" "
	Bul. 482	1907-1928	Union Scales
Cotton Goods ^a	Bul. 128	1890-1912	Pay-roll
	Bul. 492	1912-1928	" "
Foundry & Machine Shops ^b	Bul. 77	1890-1907	" "
	Bul. 388	1907-1924	Union Scales
	Bul. 471	1923-1927	Pay-roll
Iron & Steel:			
Blast Furnaces ^c	Bul. 77	1890-1907	" "
	Bul. 442	1907-1926	" "
Marble & Stone	Bul. 131	1890-1907	" "
	Bul. 482	1907-1928	Union Scales
Millwork ^d	Bul. 129	1890-1912	Pay-roll
	Bul. 388	1912-1924	Union Scales
Printing & Publishing:			
Book and Job	Bul. 77	1890-1907	Pay-roll
	Bul. 482	1907-1928	Union Scales
Printing & Publishing:			
Newspapers	Bul. 77	1890-1907	Pay-roll
	Bul. 482	1907-1928	Union Scales
Woolen Goods ^a	Bul. 128	1890-1912	Pay-roll
	Bul. 487	1912-1928	" "

^a Data not available for 1915, 1917, 1919, 1921, 1923, 1925, 1927.

^b Data not available for 1926 and 1928.

^c Data not available for 1916, 1918, 1921, 1923, 1925, 1927, 1928.

^d Data not available for 1925, 1926, 1927, 1928.

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V I T A

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